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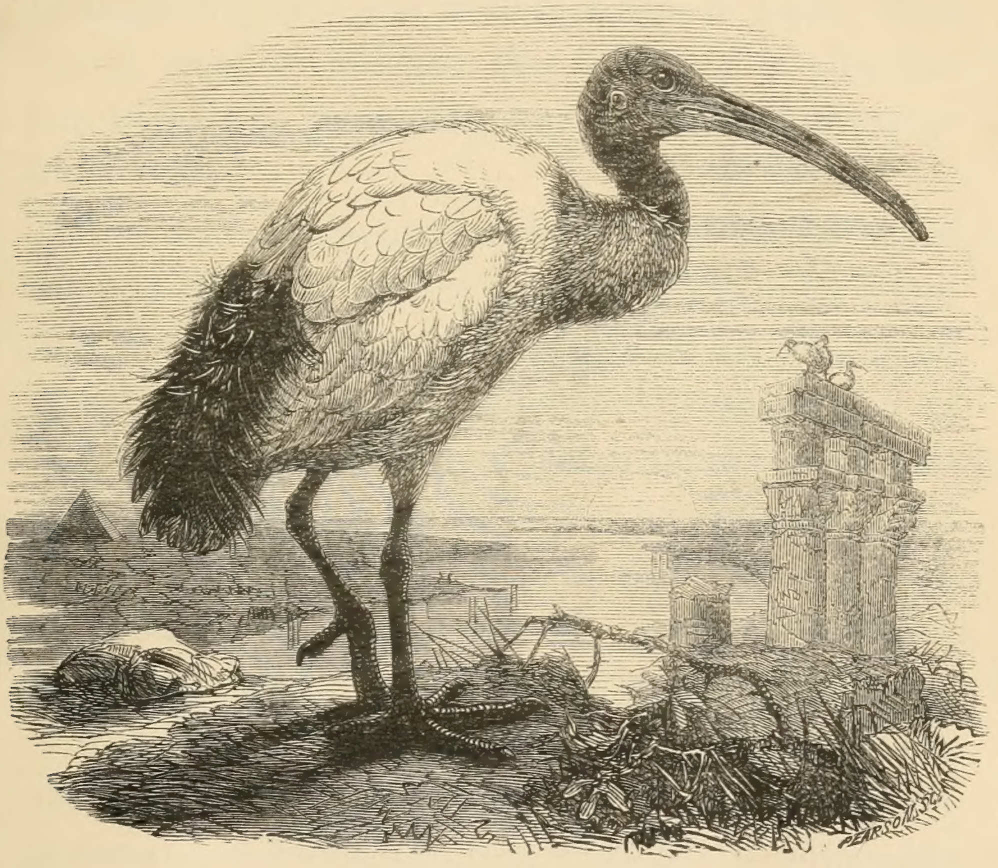
THE IBIS,

A

QUARTERLY JOURNAL OF ORNITHOLOGY.

EDITED BY

OSBERT SALVIN, M.A., F.L.S., F.Z.S., &c.



VOL. II. 1872.

THIRD SERIES.

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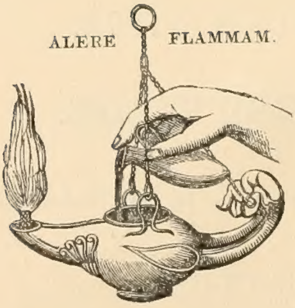
ALERE FLAMMAM.

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PREFACE.

NOTWITHSTANDING the numerous other calls on the attention of Ornithologists during the past twelve months, 'THE IBIS' continues to receive an amount of support quite equal to that of former years. This would seem to indicate that not only is Ornithological Science prospering, but our Journal prospers also.

It is also satisfactory to observe that the nature of some of the work now in progress gives great hopes that the Classification of birds will ere long be placed upon a sounder basis. The whole organization of birds, upon a knowledge of which alone correct conclusions can be arrived at, is now being investigated in a manner that bids fair to remove the reproach of shallowness in questions of classification under which our science has not unjustly laboured.

Having said thus much, we have only to thank our many friends for their contributions, and for material assistance received during our editorship of the present volume.

O. S.

32 The Grove, Boltons, London.
October 1872.

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ERRATA ET CORRIGENDA.

Page	Line	
53,	17,	for *Ægialites* read *Ægialitis.*
82,	6,	*for* gheel *read* jheel.
83,	5,	*for* gheel *read* jheel.
85,	37,	*for* Leájri *read* Bájri.
88,	3,	*for* live *read* bird.
94,	6,	*for* and that *read* and.
147,	31,	for *rostratis* read *rostratus.*
193,	10,	*for* Mr. *read* W.
197,	21,	*for* bremen *read* Bremen.
285,	5,	for *Caprimulgus* read *Macrodipteryx.*
287,	2,	for *X. subsulphurea* read *B. subsulphurea.*
287,	17,	for *cyanocampta* read *cyanocampter.*
287,	22,	for *schwarzi* read *swanzii.*
290.	8.	for *closeus* read *croseus.*
290,	33.	*for* CAPRIMULGUS FULVIVENTRIS. Hartl., *read* MACRODIPTERYX LONGIPENNIS, Shaw.
307,	30.	*for* Tognaad *read* Wynaad.
309,	22,	*for* Boyle's *read* Royle's.
453,	14,	for *leltiensis* read *lettiensis.*
,,	15,	*for* Leltie *read* Lettie.

at issue on the subject of an alleged species distinct from *F. peregrinator,* which he proposed to call *F. atriceps.*"

Now Mr. Hume *originally* regarded *atriceps* as *F. peregrinator,* as Colonel Delmé Radcliffe still does; but having been led to reconsider the subject, very properly, according to my views, abandoned his former determination, and called it *atriceps.* He sent this specimen to Europe; and it has been examined by M. Verreaux, of Paris, and Mr. Gurney, neither of which experienced ornithologists thought of referring it to *F. peregrinator*; but the former regarded it as identical with *F. melanogenys* of Australia, whilst the latter accepted it as a good species. Moreover Mr. Hodgson, who had procured it in Nepal, gave it a distinct name, *micrurus,* and has figured it in two or three different states of plumage; whilst to *peregrinator,* which appears so rare in Nepal that he has only one drawing of it, he gives his name *sultaneus,* considering it the true *shahin.*

It appears to me that Col. Delmé Radcliffe's objections to the separation of two such well-marked birds are entirely founded on the fact that he has not seen a specimen of true *peregrinator.* He candidly confesses that his specimens have "*principally* been from northern or north-western India;" and in this lies, as I believe, the gist of his opposition. He has been accustomed to hear the *atriceps* called *shahin* by his native falconers, and concluded that it must be *peregrinator.* If Colonel Delmé Radcliffe will examine the specimens of *peregrinator verus* (my *F. shaheen*), or even compare the figure of Gould, or those of my old illustrations, I am confident that such an accurate observer as he has shown himself to be will allow the two birds to be quite distinct.

Fam. TROGONIDÆ, p. 200.

I state erroneously that the Trogons are without cæca. They have rather large cæca.

117. MEROPS VIRIDIS.

Stoliczka obtained this bird in Southern Kulu in summer. I have never myself observed it in the interior of the hills.

118. MEROPS PHILIPPENSIS should, it appears, stand as

MEROPS DAUDINI, Cuvier, according to Gray and Swinhoe, the bird from the Philippines being distinct*.

119. MEROPS QUINTICOLOR.

I have recently procured this species at Gowhatty, in Assam. It also occurs in Dehra Doon, and therefore is probably to be found, though sparingly, all along the foot of the Himalayas. A female killed at Gowhatty measured 8 inches, wing $4\frac{1}{8}$, extent $12\frac{1}{2}$, tail $3\frac{1}{8}$, bill at front $1\frac{3}{10}$†.

121. MEROPS APIASTER.

I did not find this so generally spread in Kashmir as I expected; but I saw one immense flock on the Wullur lake in the month of August, evidently about to migrate. One I shot at Srinaggur measured $11\frac{1}{4}$ inches in length; extent 19; wing $6\frac{1}{8}$; tail, outer feathers 4, centre feathers nearly 5; bill at front $1\frac{1}{2}$.

125. CORACIAS GARRULA.

This is the "Nila Krás" of Kashmir. It breeds in holes on river-banks, ravines, &c.

One measured fresh $13\frac{1}{2}$ inches, extent 26, wing 8, tail $5\frac{1}{4}$. Orbits greenish yellow; irides hazel-brown; legs oil-yellow.

126. EURYSTOMUS ORIENTALIS.

This is the "Phoyiong-pho" of the Lepchas of Darjeeling, and is by no means rare in the warmer valleys of the Sikkim Himalayas.

127. HALCYON LEUCOCEPHALUS.

This should stand as HALCYON GURIAL, Pearson.

The true *leucocephalus* appears to be the race from Borneo. Four other races have been noted—one from Burmah and the Andaman Islands (*Pelargopsis burmanica,* Sharpe), one from the Malayan peninsula (*P. malaccensis,* Sharpe), one from Java and Sumatra (*P. fraseri,* Sharpe), and one from Flores (*P. floresiana,* Sharpe). The feet of our Indian form should be described as coral-red rather than scarlet.

---

* Hand-l. i. p. 99.

† Swinhoe asserts the distinctness of the Java bird from ours, which, he says, should in that case bear the name of MEROPS ERYTHROCEPHALUS, Brisson. (P. Z. S. 1871, p. 348.)

129. HALCYON FUSCUS should stand as HALCYON SMYRNENSIS, L., Strickland having shown their identity, and not their distinctness, as I erroneously state at p. 226.

135. ALCEDO EURYZONA should stand as ALCEDO GRANDIS, Blyth, *euryzona* being quite distinct. This misapplication of name, as well as that of *nigricans*, Blyth, has been assigned to me; but on reference to Blyth's 'Catalogue of Birds of the Calcutta Museum,' introduction, p. xxviii, it will be seen that I only followed Blyth himself. Of course the synonym "*A. cærulea*, Gmel. apud Bonaparte," must also be excluded. Dr. Anderson has lately procured several specimens of this fine Kingfisher from the valley of the Teesta. It has been figured both by Gould, B. Asia, pt. xxii. pl. 1, and by Sharpe in his beautiful monograph of this family.

137. CERYLE GUTTATA.

This fine Kingfisher extends to the Khasia Hills. I found it not rare in the Temshong valley, below Cherrapoonjee. In Kashmir I have seen it up to 7000 feet, as also at similar altitudes in other parts of the Himalayas. Although it may well be called the hill representative of *C. rudis*, yet it extends to the very foot of the hills, and I have seen it and *C. rudis* close together on the Kosi river where it debouches from the Kumaon hills, and also on the Ganges near Hurdwar.

138. PSARISOMUS DALHOUSIÆ.

The length of this bird is erroneously printed as 14 inches instead of 11.

139. SERILOPHUS RUBROPYGIA.

In my description of the tail of this species a serious error has occurred. Instead of "all the tail-feathers except the two centre ones broadly tipped with white," read "the three outer tail-feathers on each side tipped with white, but less broadly than in *S. lunatus*."

140. HOMRAIUS BICORNIS.

One I lately measured at Darjeeling in the flesh had the wing 21½ inches, tail 19½, bill 10¾ at gape, 15 to the end of the casque, which was 4 inches broad, depth of bill 4½. This bird is the "Kugrong" of the Lepchas, "Gogrung" of the Bhoteeas.

142. HYDROCISSA ALBIROSTRIS.

This is the Cachar bird noted by Major Godwin-Austen in his list of birds* as *coronata*. His measurements quite agree with those of the next supposed species, 143. *H. affinis*, Blyth, and confirm me in my doubts as to this bird being distinct. My suspicions were aroused by observations in the Dehra Doon, where I killed one or two individuals of the supposed species of much smaller size, nearly corresponding with the dimensions of *H. albirostris*.

145. TOCCUS GINGALENSIS.

Mr. Blyth says that the jungle grey Hornbill of continental India must stand as TOCCUS GRISEUS, Latham, *B. cinerascens*, Temm., the true *gingalensis* being only found in Ceylon, where, however, the other species also occurs. Schlegel gives our bird as from Nepal, which is, I think, doubtful; and Dr. King asserts that it occurs in Central India, near Goona. As in the south of India it only occurs in the dense forests of Malabar, I think that this locality requires confirmation, as it would be a very unexpected denizen of Central India.

146. ACEROS NIPALENSIS.

This bird is the "Khúlút" of the Lepchas, and "Gog-biah" of the Bhoteeas of Darjeeling. This Hornbill, and perhaps others of the species, is easily alarmed by any great noise; and the people of Cachar and Munnipore, when they see a small flock of them flying over their villages, make use of this trait to catch them. They shout, beat drums, fire off matchlocks; and the birds incontinently descend to the nearest tree for shelter, and even to the ground occasionally, and are killed by arrows, or sometimes even by sticks, to become food for their captors.

Buceros tickelli belongs to *Toccus*, and not to *Berenicornis*, as I state, p. 252.

146 *bis*. RHYTICEROS PLICATUS, Latham.

This Hornbill has been killed in North Cachar by Major

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* Journn. As. Soc. Bengal, 1870, p. 95.

† J. A. S. 1870, p. 96.

Godwin-Austen†. It has not hitherto been recorded from further north than Arakan. He gives the dimensions as follows:—Length 3 feet 2 inches, wing $18\frac{1}{4}$ inches, extent 5 feet 2 inches, tail 12 inches, bill $6\frac{1}{4}$, depth of bill 3*.

146 *ter*. BUCEROS ——?

"*Anorhinus galeritus*, Temm.," *apud* Godwin-Austen, J. A. S. 1870, p. 96, was so provisionally named by myself from its supposed resemblance to Blyth's *carinatus*, no books of reference being at hand. Mr. G. R. Gray was inclined to consider it perhaps the young of *Rhinoplax scutatus*, Bodd., *galeatus*, Gm.; but on examining the specimen again, and comparing it with the figure of *scutatus*, I am now inclined to consider it new, and shall give it the name of its discoverer, ANORHINUS AUSTENI. Its nearest ally is *B. tickelli* of Tenasserim; but it differs conspicuously from that by its white-tipped tail-feathers, and other points.

149. PALÆORNIS ROSA.

Blyth has shown that the Burmese race is distinguishable from that of India, the former race having the inner side of the wing entirely green, whilst the Indian bird has some blue there, and the bright colouring of the nape of the male is much more abruptly defined. Edwards's bird is the Burmese one, which will stand as *P. bengalensis*. Mr. Blyth tells me that examples of both species occur in Hodgson's collection.

150. PALÆORNIS SCHISTICEPS.

Abundant throughout the whole of the N.W. Himalayas, up to above 10,000 feet in summer. It breeds at Mussooree, Simla, in Kumaon, &c.

154. PICUS HIMALAYANUS.

In the description, I should have said that the four central tail-feathers were unspotted black. It is *P. assimilis*, Natterer, *apud* Malherbe, and is extremely common on the N.W. Himalayas, from Kumaon to Kashmir, generally at from 8000 to 10,000 feet elevation. One killed in Kashmir was $9\frac{3}{4}$ inches long, extent 16, wing $5\frac{1}{4}$, tail $3\frac{1}{8}$, foot $2\frac{1}{8}$.

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* The *Aceros* 146 *b* of Godwin-Austen's list is the male of this bird; and the one noted under the name *plicatus* is the female.

155. PICUS MAJOROIDES.

Extends into the hills of Assam, North Cachar, &c., and also into China.

157. PICUS MACEI.

I omitted to state that the male bird has the top of the head red, or mixed red and black.

157 *bis*. PICUS WESTERMANI, Blyth, Ibis, 1870, p. 163.

Mr. Blyth detected a Woodpecker in the Amsterdam Museum, from the Himalayas, "like *macei*, but larger, with the median six rectrices black as in *atratus*; wing 4·625 in." This bore the name of *P. wagleri*, Hartl., which Malherbe assigns as a synonym of *macei*, and gives the same name to a Brazilian species; so Blyth has named this bird as above.

158. PICUS SCINDIANUS.

This Woodpecker should come after 156, the upper plumage not being banded with white. I procured it in low jungles in the Punjab, near Jhelum, Shahpoor, &c. Dimensions of a freshly killed one:—Length 8 inches, wing $4\frac{5}{8}$, extent 15, tail $3\frac{1}{8}$, bill (front) 1, foot $1\frac{7}{8}$. Mr. Hume, to whom I sent a notice of its occurrence in the Salt range, has since procured it in the same localities.

159. PICUS BRUNNIFRONS.

Occasionally the third outer pair of tail-feathers has from two to four spots of white also, and there is generally a streak of light brown below the eye.

Picus pectoralis, Blyth, noted on p. 275 as without a precise habitat, turns out to be synonymous with *P. analis*, Horsf., from Java.

161. HYPOPICUS HYPERYTHRUS.

Wings black, white-spotted; shoulder unspotted; tail black, the two outermost feathers on each side with white bars on the tip only. Lower mandible pale yellow. Extent of wing of one $15\frac{3}{4}$, wing $5\frac{1}{8}$.

A very closely allied species is *P. poliopsis*, Swinhoe, from China.

162. YUNGIPICUS RUBRICATUS is *P. semicoronatus,* Malherbe. It extends to North Cachar.

164. YUNGIPICUS HARDWICKI is said to be the same as *P. nanus,* Vigors.

164 *bis.* YUNGIPICUS GYMNOPHTHALMUS, Blyth. The Ceylon Pigmy Woodpecker.

P. cinereigula, Malherbe.

This Ceylon species occurs rarely in the extreme south of Malabar and Travancore, and is the bird alluded to at the top of page 279.

Malherbe has also a *P. meniscus* from some part of India; and Swinhoe has described *P. scintilliceps,* from Pekin, and *P. kaleensis,* from Hainan. True *P. moluccensis* is from Lombok, *fid.* Wallace, who describes the Malayan race as *P. sondaicus.*

166. CHRYSOCOLAPTES SULTANEUS.

It appears that Nepal specimens do differ from those of other parts of India, being much larger, the wing measuring from 7 to 7½ inches, tail 4⅝, bill 2¼ at front. The race from Central and Southern India will therefore stand distinct as *C. delesserti,* Malherbe, according to Blyth; but I apprehend that Tickell's name of *gutta-cristatus,* though applied to the female, has the priority.

166 *bis.* CHRYSOCOLAPTES GUTTI-CRISTATUS.

Picus gutta-cristatus, Tickell.

P. delesserti, Malherbe.

P. strictus, Jerdon, Cat.

C. sultaneus, Jerdon, Birds of India (partly).

In this southern race the wing-coverts, the scapulars, and the dorsal feathers have more golden red than in the larger Nepal one.

P. strictus verus is from Java, and, though otherwise resembling these two races, differs in the female having a yellow head like the next species. The same difference distinguishes *C. hæmatribon* from *C. stricklandi.*

167. CHRYSOCOLAPTES GOENSIS.

This, it appears, should stand as C. FESTIVUS, after Boddaert, *P. humeralis,* Wagler, being another synonym.

C. stricklandi, Layard, and *Indopicus carlotta*, Malherbe, also belong to this group, and not to *Brachypternus*, as erroneously stated by myself (p. 298). The former is the species figured in my 'Illustrations of Indian Ornithology' as *Picus ceylonus.*

168. MULLERIPICUS PULVERULENTUS.

I saw a very fine specimen of this Woodpecker obtained by Major Pinwill, H. M.'s 27th Regt., in the Terai of Kumaon. It may yet prove to be distinct from the Malay bird. The species from Upper Pegu, alluded to by me (p. 285), has been named *M. feddeni* by Blyth; but I believe it will be found to be the species named *Picus crawfurdi* by Gray, and figured in Griffith's edition of Cuvier's 'Animal Kingdom'*. It has been named *Thriponax jerdoni* by Cabanis and Heine.

170. GECINUS SQUAMATUS.

I found this Woodpecker common in Kumaon, near Mussoree, in the valley of the Sutlej, and in Kashmir. It is *P. dimidiatus* of Gray in Hardwicke's 'Illustrations.'

171. GECINUS STRIOLATUS.

This Woodpecker is very common in the subhimalayan region, from Kumaon to Kashmir, and also in all the low jungles of the North-west Provinces and the Punjab.

Another, Chinese race of Green Woodpecker not alluded to in the text is *G. tancola*, Gould.

173. CHRYSOPHLEGMA FLAVINUCHA.

The reference to Gould's 'Birds of Asia,' should be part i. plate 6. The irides are brown in some individuals. It does not appear to extend to the further N.W. Himalayas; but I understand that it has been procured in Kumaon.

C. malaccensis, from the Malayan peninsula and Sumatra, put as a synonym of *C. miniata*, of Java, is quite distinct.

176. VENILIA PYRRHOTIS.

The wing of one measured lately was 5¾ inches, tail 3¾, foot 2⅜.

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* Also Hand-list, ii. p. 194.

178. MICROPTERNUS PHAIOCEPS.

One measured $15\frac{3}{4}$ inches in expanse of wing, foot only $2\frac{1}{10}$. I omitted to mention the red cheek-stripe in the male of this species.

Another race of these brown Woodpeckers from China has been named *M. fokiensis* by Swinhoe.

Gen. BRACHYPTERNUS.

This genus is peculiar to India proper, including Ceylon.

182. B. DILUTUS.

Blyth states that this is a sufficiently well characterized species. Mr. Gould has specimens of all three species.

The true *Picus ceylonus* is also a *Brachypternus*.

A fourth race of the genus CHRYSONOTUS is *C. tridactylus*, from Malacca.

186. VIVIA INNOMINATA.

The forehead of this bird is yellow rather than chestnut in freshly killed birds; and Stoliczka notices an ashy green stripe behind the yellow frontal zone. He also remarks that the upper of the two lines mentioned by me is a superciliary one, widening towards the nape, and the lower one is edged with blackish; the quills, except the first two or three, are greenish-edged; and the edge of the whole inner web of the central tail-feathers is also generally black.

It is figured by Gould, B. Asia, pt. xxii. pl. 13.

187. SASIA OCHRACEA.

This bird is figured by Gould, B. Asia, pt. xxii. pl. 14. My description was taken from a faded specimen, and is not very correct. The interscapulars are greenish, and the rump and upper tail-coverts rufescent yellow, the rest of the upper parts being green. The forehead is ochreous in females. The legs are deep yellow, not pale red; and the irides in some are crimson. The extent of the foot is misprinted $1\frac{1}{8}$ instead of $1\frac{5}{8}$.

190. INDICATOR XANTHONOTUS.

Mr. Hume states that this rare bird has been procured in the N.W. Himalayas by Col. Delmé Radcliffe—but, being doubtful of its identity, has provisionally named it *Indicator radcliffii*.

191. MEGALÆMA VIRENS.

Mr. Swinhoe asserts that the Chinese race differs from the Himalayan form, and, as the specific name *virens* was founded on the Chinese bird, has named the Indian one MEGALÆMA MARSHALLORUM*. It is called *Miouli* at Massooree, from its call.

192. MEGALAIMA LINEATA will now stand as MEGALÆMA HODGSONI, *lineata* being a distinct species, from Siam and Malayana.

193. MEGALÆMA CANICEPS.

Late observations tend to show that the jungle Green Barbet of Malabar is a distinct species, which has been named by Lord Walden as

193 *bis.* MEGALÆMA INORNATA, Walden, Ann. & Mag. Nat. Hist. 1870, v. p. 219. The Malabar Green Barbet.

Chin, throat, breast, and upper portion of abdominal region uniform pale brown, with the shafts faintly paler. Above as in *caniceps*; the terminal spots on the wing-coverts and tertiaries almost wanting. Size of *caniceps*; bill larger and stouter.

Lord Walden possesses specimens of this species from Malabar, Coorg, and Candeish. The extension of this bird to the last-named province makes it probable that Elliot's remarks properly apply to this species rather than to *caniceps*.

196. CYANOPS FRANKLINI.

This has been figured by Gould, Birds of Asia, pt. xxii. pl. 12. Length of one measured recently 9½ inches, wing 3⅞, extent 13¼, tarsus 1, foot 2.

Messrs. Marshall, in describing the call of this Barbet, copy Tickell's account, which gives it as identical with that of *Megalæma marshallorum*—and do not notice my correction of this—its call being quite similar in character, though more subdued, to that of its congeners of the plains.

196 *bis.* CYANOPS CYANOTIS, Blyth.

Godwin-Austen has obtained this Barbet at Asalu, on the

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* Messrs. Marshall state that they do not acknowledge the distinctness of the two races; but there is, I think, sufficient difference to allow Mr. Swinhoe's opinion to hold good.

North Cachar hills. It is considered distinct from *duvaucelii*, to which I referred it (p. 315), and is figured in the concluding number of Marshalls' 'Capitonidæ.'

197. XANTHOLÆMA INDICA must, it appears, bear the name of X. HÆMACEPHALA, Müller.

198. XANTHOLÆMA MALABARICA.

This is figured in Marshalls' Monograph, pt. vi. pl. xlvi.

199. CUCULUS CANORUS.

Mr. Brooks once found an egg in the nest of *Pratincola indica*, and took another from the nest of *Copsychus saularis*.

200. CUCULUS HIMALAYANUS.

This Cuckoo is now considered to be the true C. STRIATUS of Drapiez; but I see that Mr. G. Gray does not accept this conclusion. Mr. Swinhoe, however, does (P. Z. S. 1871, p. 395), and moreover gives his *C. monosyllabicus* and *C. kelungensis* as synonyms, and also, on Schlegel's authority, *C. canoroides* of S. Müller. Gray makes *C. saturatus*, Hodgson, supersede *himalayanus* as the name of this Cuckoo, the reason for which I do not see. Blyth had previously given *optatus*, Gould, as identical (which Swinhoe also adopts), and in addition the following:—*telcophonus*, Heine, from Japan; *swinhoii*, Cabanis; *horsfieldi*, Moore; and *libanoticus*, Tristram; very possibly also *C. rochi*, Hartl., from Madagascar,—truly a most formidable list of synonyms. If I am right in my remarks on the Himalaya *Hierococcyx* (see note, p. 14), all these names must give way to *flaviventris*, Scopoli!

I cannot understand the call heard by Mr. Swinhoe and attributed to this Cuckoo, from which he gave his name *monosyllabicus*. I am confident that I have correctly stated its usual call, which I have heard very frequently since my work was published, at Mussooree, where it is very abundant, and elsewhere.

A freshly killed specimen measured 12¼ inches, wing 7⅛, extent 21¼, tail 6. Another was 12½, wing 7½, extent 22, foot 2⅛. It varies a good deal in size, and especially in the proportions of its bill.

It not unfrequently assumes the hepatic plumage.

I have recently heard it on the Khasia Hills, where, however, it is far from common.

201. Cuculus poliocephalus.

C. intermedius, Vahl, *C. lineatus*, Lesson, and *C. tenuirostris*, Temm.*, are considered to be synonyms of this species. Bill blackish above, horny beneath; gape deep yellow; orbits yellow; irides brownish; feet dark yellow. The extent of wing of one was $16\frac{1}{2}$ inches. I saw this Cuckoo throughout the Himalayas up to 9000 feet of elevation, and found it recently to be not rare on the Khasia hills. Captain Bulger, in a brochure on the birds of Sikkim, attempts to syllabize the peculiar call of this Cuckoo.

203. Cuculus micropterus and

204. C. striatus = *michieanus*, Swinhoe, Ann. & Mag. Nat. Hist. 1870, vi. p. 153.

I am rather doubtful of the distinctness of these two alleged races of Cuckoo. Certainly specimens killed in the plains are a little smaller than the average of hill-birds. Blyth states that all Hodgson's specimens appear to belong to the larger race, which, if its distinction from true *micropterus* be allowed, and *striatus*, Drapiez, be correctly applied to *C. himalayanus*, must stand as *affinis*, A. Hay. True *micropterus*, however, appears also to occur in Java, and may be Drapiez's bird.

The dimensions of one freshly killed on the plains were as follows:—Length $12\frac{1}{4}$ inches, wing $7\frac{1}{4}$, extent $21\frac{1}{4}$. A large hill-example measured $13\frac{1}{2}$ inches, wing $8\frac{1}{4}$, extent $23\frac{1}{4}$. Another had the wing $8\frac{1}{8}$, extent 22; but intermediate examples are common.

Mr. Blyth states that it was evidently the larger race that was observed by Herr Radde in Eastern Siberia. At Mussooree this Cuckoo often lays her eggs in the nest of *Trochalopteron lineatum*.

205. Hierococcyx varius.

It is doubtful whether Lesson's name *tenuirostris* applies to this bird or not (see *anteà*, under 201). It is replaced in the Malayan peninsula, China, &c. by *H. fugax,* Horsf., of which *flaviventris,* Scopoli, *radiatus,* Gmel., *pectoralis,* Cabanis, and *hyperythrus,* Gould, are considered synonyms; and this is probably the species from China alluded to at page 331, Birds of India, vol. i.*

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* This name has been applied by Blyth and Swinhoe to *C. striatus*; but a specimen in Lord Walden's collection thus named appears to be the present species.

206. HIEROCOCCYX NISICOLOR.

I obtained this at Darjeeling in 1863, where it is called *Ding-pit-pho* by the Lepchas. It is, however, very close to the Chinese and Malayan bird mentioned above.

207. HIEROCOCCYX SPARVERIOIDES.

One killed lately measured in the flesh 15½ inches in length, wing 9, extent 25, tail 8. I found this Cuckoo in great abundance on the top of Mount Deobun (above 9000 feet high), near Mussooree, in June, evidently pairing, flying about, pursuing one another, and incessantly uttering their call from sunrise to long after sunset. I have never observed it at any low elevations, contrary to the observations of Dr. Stoliczka, who says he only found it on the lower hills. Blyth discriminated another race allied to this, which he called *H. nisoides.* I am inclined, from examination of the type specimen, to doubt its distinctness from *sparverioides.* Gould, in his 'Birds of Asia,' has figured *Cuculus strenuus,* resembling this last bird in every point but size, it being larger. It is probably from the Philippines.

208. POLYPHASIA NIGRA. (Plate I.)

This bird stands in Mr. Gray's list as C. PASSERINUS, Vahl, with the synonyms of *flavus,* Lesson, not of Gmelin, and *pyrommatus,* Hodgson. I believe that *C. lugubris,* Gray, *neglectus,* Gray, and *sonneratii,* apud Gray†, (No. 9019 not 9032 to which is referred the figure in Hardwicke's 'Illustrations' of *tenuirostris*), also belong to this race. I described the dark coloration of the South-Indian bird long ago, in my 'Catalogue,' under the

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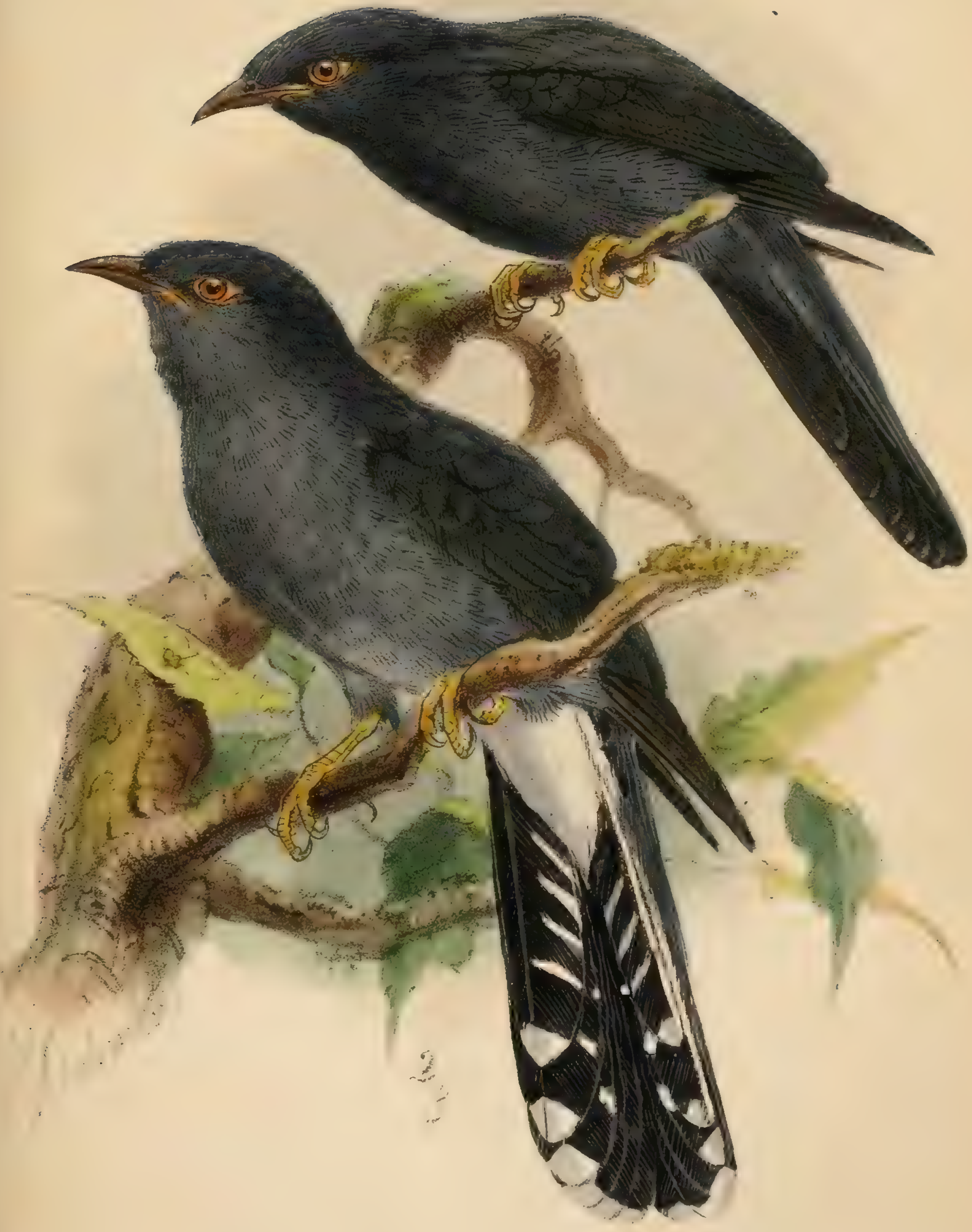
* The first two synonyms are generally given as the true names of this Cuckoo; but on reference to Sonnerat's figure, on which these names were founded, it appears to represent a true Cuckoo of the type of *C. canorus,* and is probably therefore *C. canoroides.*

† *C. sonneratii,* as usually adopted, is quite a distinct bird (see no. 202, Birds of India), although the hepatic state of plumage of the present species is very similar to that of Sonnerat's Cuckoo. In this last, the cross bars on the abdomen are much more numerous and narrower.

Ibis 1872 Pl. I.



J. G. Keulemans lith.

M & N Hanhart imp.

POLYPHASIA PASSERINA.

name of *flavus*, apud Lesson, but which I see is now considered to be a synonym by Gray. Hodgson also figures the dark stage from the Himalayas. I found this small Cuckoo spread throughout the N.W. Himalayas well into the interior, and to a considerable elevation, 9000 feet or so. A nest of *Pratincola ferrea* was brought me once with three eggs of the usual colour, and one a good deal larger, fleshy white, with numerous reddish spots; I believe that this was the egg of the Plaintive Cuckoo. One measured in the flesh 9¼ inches, wing 4¾, extent 14, tail 4⅝; the feet were oil-yellow.

209. POLYPHASIA TENUIROSTRIS.

As will be seen above, I now think that *tenuirostris*, Gray, applies to the last bird; and I know not what name to apply to the present one, but suggest *rufiventris*. Godwin-Austen gives the dimensions of the fresh bird as length 9½ inches, wing 4½, extent 12½, tail 5¼.

212. COCCYSTES MELANOLEUCUS

should stand as JACOBINUS, Bodd. This Cuckoo spreads far into the interior of the Himalayas, and is by no means uncommon in Kashmir.

214. EUDYNAMYS ORIENTALIS.

This species, according to an exhaustive paper on the subject by Viscount Walden in 'The Ibis,' must stand as EUDYNAMYS HONORATA, Linnæus*.

215. XANCLOSTOMUS TRISTIS.

One measured as follows:—Length 24 inches, wing 6⅝, extent 19½, tail 17, tarsus 1⅝, foot 2½.

217. CENTROPUS RUFIPENNIS†.

Mr. Adams, of the Customs Department, mentioned to me that he had once observed and, I believe, killed an individual of this species dragging along a young Hedgehog (*Erinaceus collaris*) by the ear.

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* According to Lord Walden, the Nepaulese and North-Indian species will stand as

214 *bis*. EUDYNAMYS MALAYANA, Cab.

† I see that Swinhoe applies the name *chinensis*, Stephens, to this species.

218. Centropus viridis.

C. affinis, given in the 'Birds of India' as synonymous with *viridis,* is a nearly allied but still smaller race, to which belong the synonyms *C. tolu* and *C. pumilus.*

220. Taccocua sirkee.

One killed in the Deyra Doon measured 17 inches in length, wing 6⅛, extent 18½, tail 9½, tarsus 1½. Bill cherry-red, with a yellow tip; orbits pale livid purple; legs dusky greenish horn.

With regard to the affinities of the genus *Coua,* p. 355, Blyth states that they appear to be rather Turacine than Cuculine.

225. Æthopyga miles.

Figured by Gould, B. Asia, pt. ii. pl. 9.

By some mistake in the text, some of the tail-feathers, next the central ones, are said to be scarlet; this is of course quite erroneous. A female measured 4¾ inches in length, wing 2, extent 6½, tail 1½.

227. Æthopyga gouldiæ.

The superciliaries and cheeks are crimson, and the throat has a dull black median stripe extending towards the breast; the lores and some of the cheek-feathers are glossless black, and there is a purple spot below the ear-coverts; the outer tail-feathers are blackish, with greenish white tips increasing towards the outer pair and most conspicuous below. In the female the rump is yellow, there are occasionally some crimson spots on the sides, and the three or four outer tail-feathers are tipped with white. I am indebted to Dr. Stoliczka for these corrections and additions to my imperfect description. The species is figured by Gould, 'Birds of Asia,' pt. xix. pl. 6. I have only found this beautiful Honeysucker in the N.W. Himalayas, in the valleys of the Sutlej and Touse rivers. Stoliczka procured it in the same locality up to 9000 or 10,000 feet near Chini; I did not myself observe it higher up than Nachar. As stated in the 'Birds of India,' I never got it at Darjeeling; nor have I lately seen a specimen procured there, nor in any of the countries to the eastward. I fancy Mr. Blyth, from whom I took the geographical distribution mentioned in my work, must have been misinformed on the subject*.

228. ÆTHOPYGA IGNICAUDA.

Figured by Gould, 'B. of Asia,' pt. ii. pl. 8.

229. ÆTHOPYGA NIPALENSIS.

Figured by Gould, *l. c.* pt. ii. pl. 11.

231. ÆTHOPYGA SATURATA.

Figured by Gould, *l. c.* pt. xix. pl. 7.

The yellow band on the rump is well marked in fresh specimens—not merely a "faint trace," as I stated from a specimen not well stuffed. The green of the lower parts is lighter and more yellowish than that of the upper plumage, and becomes yellow rather than "flavescent" on the under tail-coverts. The tail, too, is distinctly wedge-shaped, the outer tail-feathers dusky, with white tips.

The length of wing should be $2\frac{1}{8}$, not $2\frac{7}{8}$ as misprinted.

232. LEPTOCOMA ZEYLONICA.

Figured by Gould, 'B. Asia,' pt. xix. pl. 4.

233 *bis*. CHALCOPARIA CINGALENSIS.

I obtained one specimen of this Honeysucker at the foot of the Teria Ghat of the Khasia hills, the most northern locality hitherto recorded. It is common further south in Tipperah. Godwin-Austen records my specimen in his list. Length $4\frac{4}{10}$ inches, wing $2\frac{5}{100}$, tail $1\frac{7}{10}$, bill at front $\frac{1}{2}$.

Mr. Hume has also obtained the lovely *Leptocoma hasselti* from Tipperah.

234. ARACHNECHTHRA ASIATICA.

This bird now stands as

ARACHNECHTHRA CURRUCARIA, L.

It is figured by Gould, B. Asia, pt. viii. pl. 2.

I omitted to mention the narrow pectoral band of maroon dividing the purple of the breast from the purplish black abdomen.

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* Mr. Elwes, however, tells me that he believes, from recollection, that specimens of this Honeysucker were lately procured by Mr. Gommie near Rurghee.

The female has the feathers of the head centred with dusky, the outer tail-feathers tipped with whitish; it is yellow beneath, paler on the throat, and greenish-ashy on the sides.

Stoliczka states that he has seen it in the Sutlej valley as high as 8000 feet. Blyth mentions that *Nectarinia pectoralis* of Temminck (not of Horsfield) closely resembles this species.

234 *bis.* ARACHNECHTHRA INTERMEDIA, Hume.

Ibis, 1870, p. 436.

Resembling *A. currucaria,* but slightly larger, and with the bill conspicuously so; axillary tufts more orange and larger. From Tipperah.

After the first volume of the 'Birds of India' was published, I saw in a collection made in the Terai of Goruckpore a specimen which I took at the time to be *A. lotenia,* and was much surprised at its occurrence there. It is very possible that it was a specimen of Mr. Hume's *A. intermedia.* I have not had an opportunity of comparing a specimen of *A. pectoralis* with Mr. Hume's description, which, however, should be done.

235. ARACHNECHTHRA LOTENIA.

Figured by Gould, B. Asia, pt. viii. pl. 3.

236. DICÆUM COCCINEUM.

Figured by Gould, B. Asia, pt. vi. pl. 15.

One killed in Assam, where it is very abundant, measured in the flesh:—Length $3\frac{1}{2}$ inches, wing $1\frac{13}{16}$, extent $5\frac{3}{4}$, tail $1\frac{1}{10}$, tarsus $\frac{1}{2}$.

240. PIPRISOMA AGILE.

This bird has been lately figured (in 'The Ibis' for 1867, pl. x.) with its nest, which was obtained by Mr. Beavan in Central India. The nest is a very neat structure, quite resembling that of many of the *Nectariniæ.* The egg is fleshy, with reddish spots.

Mr. Swinhoe has informed me that *Dicæum obsoletum,* Müll. & Schlegel, from Timor, is identical with our bird. With reference to my notes on its habits, Mr. Beavan remarks that he only saw it in pairs, not in small flocks; but as he observed it during the breeding-season, and I have chiefly procured it in the cold weather, the discrepancy may be easily accounted for. Very possibly, however, the small flocks I allude to were only the family parties. Stoliczka observed this bird in the lower Himalayan ranges.

Mr. Blyth remarks that a second species, apparently of this genus, exists in PARDALOTUS PIPRA, Lesson, Cent. Zool. pl. 26, from Ceylon, which, however, does not appear to have been observed by late collectors, and is, I believe, not Indian.

241. MYZANTHE IGNIPECTUS.

Figured by Gould, B. Asia, pt. vi. pl. 14.

I omitted to mention the black streak extending along the middle of the abdomen from the termination of the scarlet breast-spot. The female is dull olive-green above, brighter on the scapulars and upper tail-coverts; below greenish yellow, whitish on the throat, and buff on the sides.

Dimensions of a recent specimen :—Length $3\frac{5}{8}$ inches, extent nearly 6, the rest as in the text.

243. CERTHIA HIMALAYANA.

C. vitticauda, Jameson, figured by Gould, B. Asia, pt. ii. pl. 17.

There is no doubt that this bird is the true *Certhia vitticauda* of Jameson, and not *Sitta himalayensis* as given in Horsfield and Moore's Cat. of Birds of E. I. C. Museum, which has been followed by myself and others. The name was given as expressing the chief point of difference from *C. familiaris.* Bill dusky brown above, fleshy beneath; legs pale fleshy brown. In a recent specimen the wing was $2\frac{3}{4}$ inches, extent $7\frac{3}{4}$, bill nearly 1 inch in some specimens.

In the cold weather this Creeper extends in suitable localities into the more wooded portions of the plains in the N.W. provinces, never, however, very far from the hills. It is by no means rare in the Botanical Gardens at Saharunpore; and I have killed it in several other localities.

243 *bis.* CERTHIA FAMILIARIS, L.

I found the European Creeper common in most of the elevated forests of Kashmir. Gould had previously recorded one specimen from some part of India, locality not recorded.

244. CERTHIA NIPALENSIS.

Figured by Gould, B. of Asia, pt. ii. pl. 16.

A fresh specimen had the following dimensions. Length $5\frac{3}{4}$

inches, wing $2\frac{3}{4}$, extent 8, tail $2\frac{3}{4}$, tarsus $\frac{6}{10}$, foot $1\frac{3}{8}$. Bill dusky above, fleshy below; legs livid brown.

245. CERTHIA DISCOLOR.

There is a pale wing-bar on all the primaries (except the first three) and on the secondaries, and a pale spot near the tip as well. The colouring of the lower parts is conspicuously paler posteriorly; and the shafts of the tail-feathers are brighter ferruginous. Bill dusky above, fleshy beneath; legs fleshy. Length of a specimen freshly killed $6\frac{1}{4}$ inches, wing $2\frac{5}{8}$, extent 9, tail $3\frac{1}{4}$, foot $1\frac{1}{4}$.

Gould figures this on the same plate as the last species, of which he considers it to be a variety only.

246. SALPORNIS SPILONOTA.

This very interesting bird has been procured in Central India by Mr. W. Blanford, especially near Sironcha, on the Godavery. Captain Pinwill, H.M. 27th, some years ago showed me one he had killed in the Oudh Terai; and Mr. Hume has also received it from other localities. Mr. Blanford has given an interesting account of its habits; and from his notes I give the following particulars:—Bill blackish above, flesh-coloured below; legs dusky horny, inclining to plumbeous; irides brown. Length $5\frac{1}{4}$–$5\frac{3}{4}$ inches, extent $9\frac{1}{2}$, wing $3\frac{1}{4}$–$3\frac{1}{2}$, tail $2\frac{1}{8}$, bill at front $\frac{3}{4}$–1, tarsus $\frac{5}{8}$, foot $1\frac{5}{8}$.

248. SITTA HIMALAYENSIS.

S. vitticauda is not a synonym of this Nuthatch, as pointed out above, p. 19. The lateral tail-feathers have an oblique white spot near the tip; one measured in the flesh 9 inches in extent, wing $2\frac{3}{4}$. Legs pale dusky yellowish.

This bird certainly does not extend to the highlands of Central India as stated by Gould.

249. SITTA LEUCOPSIS.

I found this fine Nuthatch not rare in the valley of the Sutlej, at from 9000 to 10,000 feet elevation, and still more abundant in the fine forests of Kashmir at similar elevations. Stoliczka found it feeding on the seeds of *Pinus gerardiana* and *P. excelsa*. Bill dusky, bluish beneath for the basal half;

legs dingy reddish; irides dark brown. Extent of wing $9\frac{1}{2}$, foot $1\frac{1}{2}$.

250. Sitta castaneoventris.

One killed in the N.W. provinces measured $9\frac{1}{4}$ inches in extent, tail $1\frac{1}{2}$, bill at front $\frac{5}{8}$, foot nearly $1\frac{5}{8}$. Its bill is much more slender than that of *S. cinnamomeiventris*. I found it extending nearly to the foot of the Himalayas, in the Bijnour and Saharunpore districts, frequenting all large groves and gardens.

251. Sitta cinnamomeiventris.

The tail has the two central feathers grey, the rest blackish; the outermost three on each side with large white spots on the inner webs near the tip; the outermost of all has also a spot on the outer web near the base; the two next the uropygials are grey at the tip and on the outer web. It has been noted that the female of this species corresponds very closely with *Sitta krueperi*.

252. Sitta formosa.

Figured by Gould, B. of Asia, pt. i. pl. 7.

This beautiful Nuthatch was recently obtained by Major Godwin-Austen in North Cachar.

253. Dendrophila frontalis.

One killed in Assam, where it is very common, had the wing $2\frac{8}{10}$, tail $1\frac{3}{4}$, bill $\frac{9}{20}$, tarsus $\frac{7}{10}$, foot $1\frac{1}{2}$. I saw it in the Saharunpore Botanical Gardens in the cold weather.

Sitta azurea, Lesson (= *S. flavipes*, Swainson), figured by Gray, 'Genera of Birds,' is a very beautiful species of this genus from Java.

254. Upupa epops.

One measured in the flesh $11\frac{1}{2}$ inches, extent $18\frac{1}{2}$, wing 6, tail $4\frac{1}{2}$.

This Hoopoe breeds very generally in the N.W. Provinces, in the verandas of houses; and I watched one for some days in the house of the late Dr. Scott at Umballa, which he alludes to in a former volume of 'The Ibis'*. I, however, did on one occasion see the female Hoopoe fly off her nest in the veranda merely to drop her fæces, and return immediately. In this letter of Dr. Scott's to Mr. Blyth, there is twice a misprint of gnats for grubs, easily enough accounted for by those who were acquainted Dr. Scott's left-handed writing. Had he, indeed, intended gnats, he would much more likely have used the word mosquitoes; but as we sat together in his veranda watching the male Hoopoe digging up grubs, I am confident he intended, and, indeed, wrote that word.

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* See 'The Ibis' for 1866, p. 222.

It also breeds in holes of trees, as I observed at Hardwar and elsewhere. At Umballa I daily noticed its hunting for food, which appeared to consist almost entirely of grubs. These it hunted for on the ground, tapping with its bill continually till it discovered the retreat of one (by what sense I cannot say, whether of smell or sound), when it dug pertinaciously and vigorously through the rather hard soil till it reached the desired morsel, the beak being occasionally immersed to its base. I fancied that the call of this species is very generally a treble hoot, whilst that of the next one is more commonly a double call.

255. UPUPA NIGRIPENNIS.

It appears that this bird should stand as UPUPA CEYLONENSIS of Reichenbach. The white spot on the first primary is occasionally present in this species, and is even sometimes found on one wing and not on the other; it is therefore not to be relied on as a specific character.

Blyth, in his commentary, accepted the Burmese race, which I named *longirostris,* as a distinct one; and Mr. Sharpe, who has lately been critically examining the Hoopoes, has come to the same conclusion. Swinhoe, on the contrary, in his latest list puts it as a synonym of *U. ceylonensis.*

[To be continued.]

II.—*On a new Species of* Phylloscopus. By W. E. BROOKS, C.E., Etawah, India.

WHILE I was in Cashmere, in May and June of the present year, 1871, I frequently saw a *Phylloscopus* which appeared to to me at the time to be new, and procured four specimens. My friend Col. Tytler was the first to separate it, four years ago, from *Phylloscopus viridanus,* which bird it somewhat resembles, and for which, at first sight, it might be easily mistaken by merely superficial observers.

Col. Tytler shot this specimen at Simla; and it corresponds in every respect with my Cashmere specimens.

Another specimen, and the sixth with which I am acquainted, was shot (by another friend of mine, Capt. Cock) off the nest with four eggs, at Sonamurg, in Cashmere. This was in June last; and Capt. Cock sent me the bird for identification.

This new *Phylloscopus* I propose to call

PHYLLOSCOPUS TYTLERI, sp. nov.

The following are the dimensions:—Length 4·75 in.; wing 2·3; tail 1·7; bill at front ·36, bill from nostril ·3; tarsus ·75.

The dimensions of *Phylloscopus viridanus* are:—Length 5 in.; wing 2·5; tail 2; bill at front ·3, bill from nostril ·29; tarsus ·8.

It will be seen from the above that *P. viridanus* is a larger bird.

In form, *P. tytleri* differs from *P. viridanus* by *having a longer, narrower, much more pointed, and very much darker-coloured bill,* the lower mandible being black-brown instead of pale flesh-colour. This alone is quite sufficient to distinguish it: the wing is shorter, but of the same form as that of *P. viridanus* in regard to proportions of primaries. The tail is shorter. In colour it is of a darker and richer olive on the whole upper parts, and does not appear to have the tail rayed: that of *P. viridanus* is generally very conspicuously rayed. There is a total absence of the "slight whitish wing-bar," which I have always observed to be present in *P. viridanus,* unless the bird be in very abraded plumage.

In notes and song (if the few notes it utters can be called a song) *P. tytleri* is utterly different from *P. viridanus.* Its call-note is very peculiar, and once heard could not easily be forgotten. In the localities it frequents and inhabits it is quite opposed to *P. viridanus.* The latter, during the breeding-season, frequents mountain-ravines not far from the snows, which are covered with brushwood and small birch trees; whilst *P. tytleri* is a forest *Phylloscopus,* frequenting the pine-woods below the snowy ranges. The only nest found of our new bird was the one above referred to, taken by Capt. Cock.

III.—*On the Breeding of* Reguloides superciliosus, Reguloides proregulus, Reguloides occipitalis, *and* Phylloscopus tytleri.

By W. E. Brooks, C.E.

In 1868, in consequence of ill health, I went to Nynee Tal and Almorah in the spring of the year. But beyond several times seeing *Reguloides superciliosus* passing up the lower ranges in April, and afterwards obtaining a single specimen near the top of the Kalee Mŭt hill, near Almorah, I never met with this little bird. *Reguloides proregulus* I never once saw. In the autumn of 1869, Capt. Cock having reported *Reguloides* to be very numerous at Dhurmsala, I sent two natives there in the spring, who were perfectly acquainted with *R. superciliosus,* both as regards its notes and appearance, instructing them to make every effort to find the nest. By the 10th of May they reported the last of the *Reguloides* to have left the neighbourhood of Dhurmsala; nor were they again seen. This second failure determined me to trace the little bird to its breeding-places, if possible. In this I was assisted by some skins which Dr. Jerdon gave me. Amongst them were a few of *Reguloides superciliosus* and *R. proregulus.*

By inquiries which Mr. Dresser kindly made at my request of Dr. Jerdon, I learned that the probable date when they were obtained was about the 12th of July, 1867, and that the locality was Gulmerg, in Cashmere. This was conclusive proof that this place was one of the breeding-resorts of both species of *Reguloides* above mentioned. Being entitled to leave, I applied for it, and left for Simla on the 24th of April. While there for a day, I heard the call-note of *Reguloides superciliosus* very frequently. I also heard it on the way to Simla in the pine woods at Kussowlie. I returned to the plains after I had seen Col. Tytler's museum and had carefully examined his specimen of *Aquila hastata.* Googerat was soon reached; and thence I marched into Cashmere, in which country I did not meet with *Reguloides superciliosus* till I reached the north face of the Ruttun Pir mountain. This hill has an elevation of about 8400 feet. Here the little bird was plentiful; and so were *R. proregulus* and *R. occipitalis,* the latter being in full song. By dissecting females of each species, I ascertained that they would not lay before the end of May at the earliest. *R. proregulus* was still in flocks. In the habit of congregating, and being always on the move from tree to tree, these birds resemble the Titmice, and are equally noisy; but the other *Reguloides* are more silent and solitary.

I continued my journey to Srinuggur, rather reluctant to leave a place where these birds were so plentiful. At Srinuggur I met Capt. Cock, who, like myself, was also upon a nesting-expedition, and equally intent upon solving the problem as to where the *Reguloides* bred.

We were too early for their eggs, and in the mean time went up the Scind valley. When we had gone two marches, finding that the gorge became very rocky and narrow, with but very few birds, I decided upon retracing my steps and making the best of my way to Gulmerg. I did so; but Capt. Cock continued his journey to Sonamerg, intending afterwards to join me at Gulmerg. I arrived there on the 31st of May, at about 10 o'clock; and by 4 o'clock in the afternoon I had three nests of *Reguloides superciliosus* in my possession, each containing five eggs. On the very same day Capt. Cock had also taken the eggs of this bird at Sonamerg.

Gulmerg is one of those mountain-downs, or extensive pasture-lands, which are numerous on the tops of the range of hills immediately below the Pir Punjal range, which is the first snowy range. It is a beautiful mountain-common, about 3000 feet above the level of Srinuggur, which latter place has an elevation of 5235 feet. This common is about three miles long, and about a couple of miles wide, but of very irregular shape. On all sides the undulating grass-land is surrounded by pine-clad hills; and on one side the pine-slopes are surmounted by snowy mountains. On the side near the snow the supply of water in the woods is ample. The whole hill-side is intersected by small ravines, and each ravine has its stream of pure cold water—water so different from the tepid fluid we drink in the plains. In such places where there were water and old pines *Reguloides superciliosus* was very abundant. Every few yards was the domain of a pair. The males were very noisy, and continually uttered their song. This song is not that described by Mr. Blyth as being similar to the notes of the English Wood-Wren (*P. sibilatrix*), but fainter. It is a loud double chirp or call, hardly worthy of being dignified with the name of song at all. While the female was sitting, the male continued vigorously to utter his double note, as he fed from tree to tree. To this note I and my native assistants paid but little attention; but when the female, being off the nest, uttered her well-known "*tiss-yip*," as Mr. Blyth expresses the call of a Willow-Wren, we repaired rapidly to the spot, and kept her in view. In every instance, before an hour had passed, she went into her nest, first making a few impatient dashes at the place where it was, as much as to say, "there it is; but I don't want you to see me go in."

When a nest was found by one of the natives, the eggs were not removed till I had seen the bird come out of the nest, and had heard her well-known note. From the first few nests I shot the females: but this was needless slaughter; for the note is so peculiar and decided that no other mode of authentication is necessary.

In the woods frequented by this bird at Gulmerg, the only other *Reguloides* were *R. occipitalis* and a few of *R. proregulus*. Of *Phylloscopi* the only species were *P. magnirostris*, very scarce, and *P. tytleri*, described above, equally scarce.

The nest of *Reguloides superciliosus* is always, so far as my observation goes, placed on the ground, on some sloping bank or ravine-side. The situation preferred is the lower slope near the edge of the wood, and at the root of some very small bush or tree—often, however, on quite open ground, where the newly growing herbage was so short that it only partially concealed it. In form it is a true Willow-Wren's nest, a rather large globular structure, with the entrance at one side. Regarding the first nest taken, I have noted that it was placed on a sloping bank, on the ground, among some low ferns and other plants, and close to the root of a small broken fir tree, which, being somewhat inclined over the nest, protected it from being trodden upon. It was composed of coarse dry grass and moss, and lined with finer grass and a few black hairs. The cavity was about two inches, and the entrance about one and a half inch in diameter. About twenty yards from the nest was a large, old, hollow fir tree; and in this I sat till the female returned to her nest. My attendant then quietly approached the spot, when she flew out of the nest and sat on a low branch two or three yards from it. Then she uttered her "*tiss-yip*," which I know so well, and darted away among the pines. My man retired, upon which she soon returned; and having called for a few minutes in the vicinity of the nest, she ceased her note and quickly entered. Again she was quietly disturbed, and sat on a twig not far from her nest. I heard her call once more, and then shot her. There were five eggs, which were slightly incubated.

The capture delighted me; but I felt sorry that I had shot her off her valuable eggs. I was much struck with the very worn state of her plumage; the yellow and the olive were so faded, and the bars on the wing worn. The newly moulted autumnal bird is very different. Few birds fade so much and lose colour to the extent that this little bird does. I took two other nests that same day (31st of May), also a nest of *Reguloides occipitalis*, and one of *Siphia leucomelanura*. In the mean time Capt. Cock had reached Sonamerg, which proved to be a better place for *Reguloides* than even Gulmerg; and on the same day he took his first nest of *Reguloides superciliosus*. In his letter to me he says, "Now for *R. superciliosus*. I took my first nest on the 31st, with five eggs, and shot the old bird. This bird builds, in an exactly similar situation as *Abrornis*, a little globular nest, placed on the side of a steep bank, with only the little entrance-hole exposed to view. The nest is composed of dry grass outside, a little moss, and thickly lined with hair of the musk-deer."

My second nest was placed on the side of a steep bank, on the ground. The third was similarly placed, and composed of coarse grass and moss, and lined with black horse-hair. In each of these nests the number of eggs was five.

Another nest, taken on the 1st of June, with four eggs, was placed on the ground, on a sloping bank, at the foot of a small thin bush. It was composed as usual of coarse dry grass and moss, and lined with finer grasses and a few hairs. The eggs were five or six days incubated. Another nest, with four eggs, was placed on the ground, under the inclined trunk of a small fir. The same materials were used. Another nest containing four eggs was placed on a sloping bank, and quite exposed, their being little or no herbage to conceal it. It was composed as before, with the addition of a few feathers in the outer portion of the nest. Another nest was at the roots of a fern growing on a very steep bank. The new shoots of the fern grew up above the nest; and last year's dead leaves overhung it and entirely concealed it. Another was placed on a sloping bank, immediately under the trunk of a fallen and decayed pine. On account of irregularities in the ground, the trunk did not touch the ground where the nest was by about two feet. This was again an instance of contrivance for the nest's protection. It was composed of the same materials as usual.

Another was among the branches of a small shrub, right in the centre of the bush, and on the ground, which was sloping as usual. Another nest, with four eggs, taken on the 3rd of June, was placed in the steep bank of a small stream only three feet six inches above the water.

The above examples will give a very fair idea of the situation of the nest; and it now remains only to describe the eggs, which average ·56 in. long by ·44 in. broad. The largest egg which was measured was ·62 long and ·45 broad; and the smallest measured ·52 long and ·43 broad. The ground-colour is always pure white, more or less spotted with brownish red—the spots being much more numerous, and frequently in the form of a rich zone or cap, at the larger end. Intermixed with the red spots are sometimes a few of purple-grey. Other eggs are marked with deep-purple-brown spots, like those of the Chiffchaff, and the spots are also intermingled with purple-grey. Some eggs are boldly and richly marked, while others are minutely spotted. The egg also varies in shape; but as a general rule they are rather short and round, resembling in shape those of *P. trochilus*. In returning from Cashmere, on the south face of the Pir Punjal mountain, and close to the footpath, I found, on 15th June, a nest of this bird with four young ones. This nest was placed in an unusually steep bank. Half an hour after finding the nest, and perhaps a thousand feet lower down the hill, I stood upon a mass of snow which had accumulated in the bed of a mountain-stream.

I must now say a few words about the nesting of *Reguloides proregulus*. As far as I myself am concerned, I was completely foiled and never obtained a single nest. I looked only on the ground, expecting to find its nesting-habits similar to those of *Reguloides superciliosus,* whereas *Reguloides proregulus* builds in fir trees; and in this habit it appears to be allied to the true *Reguli.* Capt. Cock writes from Sonamerg, "The second day I found my first nest with eggs. It was the nest of *R. proregulus.* I shot the old bird. Three eggs. These nests are often placed on a bough high up in a pine tree, and are domed or roofed, made of moss, and lined with feathers. I took another one to-day with five eggs, and shot the bird just as it was entering the nest. This was on the bough of a pine, but low down. I know of two more nests of *R. proregulus,* all on pine trees, from which I hope to take eggs."

After describing the nest of *R. superciliosus* before quoted, and saying that it was lined with the hair of the musk-deer, he adds, "In this the nest differs from that of *R. proregulus,* which lines its nest with feathers and bits of thin birch bark; and the nest of *R. proregulus* is only partly domed."

I measured four eggs of *R. proregulus* which Capt. Cock kindly gave me; and the dimensions are as follows:—·55 × ·44, ·53 × ·43, ·53 × ·43, and ·54 × ·43. They are pure white, richly marked with dark brownish red, particularly at the larger end, forming there a fine zone on most of the eggs. Intermingled with these spots, and especially on the zone, are some spots and blotches of deep purple grey. The egg is very handsome, and reminds one strongly of those of *Parus cristatus* on a smaller scale. The dates when the eggs were taken are 30th of May and 2nd of June, and the place Sonamerg, which is four marches up the valley of the Scind river.

Reguloides occipitalis.—This is perhaps the most abundant bird in Cashmere wherever there are good woods. It is found at almost all elevations above the Cashmere plain. I only took three nests, as the little bird is very cunning, unlike the simple *Reguloides superciliosus.* It is very careful indeed how it approaches its nest when an enemy is near. The nest is placed in a hole under the roots of a large tree on some steep bank-side. I found one in a decayed stump of a large fir tree, inside the rotten wood. It was placed on a level with the ground, and could not be seen till I had broken away part of the outside of the stump. It was composed of green moss and small dead leaves, a scanty and loosely formed nest, and not domed. It was lined with fine grass and a little wool, and also a very few hairs. There were five eggs.

Another nest was also placed in a rotten stump, but under the roots. A third nest was placed in a hole under the roots of a large living pine; and in front of the hole grew a small rose-bush quite against the tree-trunk. This nest was most carefully concealed; for the hole behind the roots of the rose-bush was most difficult to find.

The eggs are of a rather longer form than those of the *Reguloides* before described, and are pure white without any spots. They average ·65 by ·5.

Of *Phylloscopus tytleri,* which I have described in a separate paper, I have to remark that among my Etawah-killed specimens of *P. viridanus,* and others shot at Almorah in 1868, I have found two specimens of this new bird. Capt. Cock shot one of this species off the nest at Sonamerg with four eggs. The bird he sent to me, and gave me two of the eggs. Regarding the nest, he says, "I took a nest, containing four eggs, about forty feet up a pine, on the outer end of a bough, by means of ropes and sticks; and I shot the female bird. I do not know what the bird is; I thought it was *P. viridanus*; but I send it to you. The nest was very deep, solidly built, and cup-shaped. Eggs plain white." In conversation with Capt. Cock he afterwards told me that he had watched the bird building its nest. It was placed rather on the side of the branch; and its solid formation reminded him of a Goldfinch's nest. It was composed of grass, fibres, moss, and lichens externally, and thickly lined with hair and feathers. The eggs were pure unspotted white, rather smaller than those of *R. oc-*

cipitalis. Two of them measured ·58 by ·48 and ·57 by ·45. They were taken on the 4th of June.

In conclusion, I hope that other ornithologists will take a little pains to supply the remaining blanks in the information we have of the nests and eggs of this interesting group. There remain *P. magnirostris, P. fuscatus, P. tristis, P. viridanus, P. affinis, P. indicus, Reguloides trochiloides, R. viridipennis, R. erochroa, R. maculipennis,* and *R. castaneiceps.*

P. magnirostris, P. viridanus, and *P. affinis* breed in Cashmere, and *P. tristis* in Ladak. I saw *P. indicus* in great numbers ascending the hills towards Simla about the end of April; and I once shot one at Almorah, in May 1868; but they go far beyond that place to breed, to the immediate neighbourhood of the great snowy ranges, to find a climate as cold as that of Siberia.

IV. *On an undescribed Bird from the Island of Rodriguez.*

By Alfred Newton, M.A., F.R.S., &c.

Leguat in his charming work * several times incidentally mentions among the consolations which he and his fellow-exiles found in the Island of Rodriguez, the abundance of "Perroquets." In the first passage (i. p. 67) he records their predilection for the nuts of a tree somewhat like an olive; in the second (i. p. 107) he speaks of their being "verds & bleus," "sur tout de médiocre & d'égale grosseur," and having flesh not less good than that of young Pigeons; in the third (i. p. 132) he states that some of them were instructed by his company, and that they took one, which spoke French and Flemish, with them to Mauritius.

The second of the passages just cited is so vague as to raise the question whether there were green Parakeets and blue Parakeets, or only Parakeets possessing a combination of both colours; and the solution of the doubt would require the discrimination of judges better than those who had to hear the famous case of 'Stradling *versus* Stiles,' the issue whereof was whether, under the terms of a will, specifying certain "black and white horses," the plaintiff should have horses which were 'pyed." It does not seem that this celebrated cause was ever settled; for the learned Martinus Scriblerus, who reports it, concludes by saying, "Et sur ceo le court *advisare vult*;" and so in the present case ornithologists were compelled to suspend their judgment.

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* Voyages et Avantures de François Leguat, &c. London: 1708. (First edition quoted.)

A little more light is thrown on this obscure subject by the following excerpts from Pingré's journal, kindly transcribed for me some time ago by Professor Alphonse Milne-Edwards from the original manuscript then preserved in the library of Ste. Geneviève at Paris. Pingré was in Rodriguez in 1761, occupied with observations on the transit of Venus. He writes (p. 195):—"La perruche me semblait beaucoup plus délicat." [He had just been mentioning the esculent qualities of a species of *Pteropus*.] "Je n'aurais regretté aucun gibier de France, si celui ci eut été plus commun à Rodrigue: mais il commence à devenir rare. Il y a encore moins de perroquets quoiqu'il y en ait eu encore autrefois en assez grande quantité, selon Fr. Leguat, et en effet une petite isle au sud de Rodrigue a encore conservé le nom d'Isle aux perroquets." It would hence appear that there was a "Perruche" and a "Perroquet," though unfortunately Pingré does not say what either was like.

Now it will perhaps be recollected that in 1864 my brother Edward observed a flock, and obtained an example of what he believed to have been *Agapornis cana* in Rodriguez (Ibis, 1865, p. 149); but this is said to have been a species introduced there, no doubt since Leguat's time. On the other hand, in 1867 Professor Alphonse Milne-Edwards described the fragment of a Parrot's *maxilla*, found in the caves of that island with bones of its Solitaire (*Pezophaps solitarius*), and sent to my brother by Mr. George Jenner. This very indifferent relic was admirably shown* by that accomplished ornithologist to have many resemblances to the genus *Eclectus*, to which he doubtfully referred it under the name *Psittacus* (*Eclectus*?) *rodericanus*. The large size of the bird (to whatever group it belonged), equally with the small size of the *Agapornis* seen by my brother (to say nothing of the story of its later introduction), precludes either from being the "Perroquet" characterized by Leguat as of "médiocre grosseur," and again mentioned by Pingré. Accordingly this last remained to be discovered, while the "Perruche" of Pingré may be set down as the species indicated by M. Milne-Edwards.

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* Ann. Sc. Nat. (5) Zool. viii. pp. 145–156, pls. 7, 8; C. R. lxv. pp. 1121–1125.

It was accordingly with no small interest that I learned some months ago, from my brother Edward, that he had received from Mr. Jenner, the magistrate of Rodriguez (to whom we owe so great a debt for his examination of the caves of that island), an example of a "Parrot" preserved in spirit. My brother, with no small amount of self-denial, would not open the tin case which enclosed this specimen, fearing that it might thereby sustain injury, but transmitted it to me; and a few weeks since it reached me in safety. On opening the case with the assistance of Mr. Bartlett, who is always so ready to do an obliging act, we found its contents to be a bird of the genus *Palæornis* in excellent preservation; and, in full confidence that it has never been named or described, I here characterize it as

PALÆORNIS EXSUL, sp. n.

Diagn. (*fœminæ*). *P.* mediocris, griseiglaucus, vitta menti obscura nigra; remigibus externe cæruleo lavatis, interne nigris.

Long. tot. 16, alarum expans. 22, alæ a flex. 7·5, caudæ 8·5, acrotarsi ·6, dig. med. sine ung. 1·1, hallucis sine ung. ·5, maxillæ a fronte 1, ejusdem a rictu ·83, mandibulæ ab articulo 1·48, poll. Angl.

Hab. in Insula Rodericana.

Mus. A. et E. Newton (exempl. i.).

Descriptive of a female. Of moderate size. General appearance greyish-glaucous, darker above than beneath. From the corners of the mouth proceeds an ill-defined dull black chin-stripe, which becomes broader as it passes backward and upward, ceasing somewhat abruptly on reaching the level of the ears. Head, nape, shoulders, upper wing-coverts and rectrices above dull greyish-glaucous, the blue tinge in which predominates when the bird is seen against the light, and the green when seen in the contrary aspect; the outer rectrices paler. Rump verditer-blue. Primaries with their outer and most part of their inner webs deep greenish-blue, the former with narrow lighter edges, and the latter broadly bordered with pitch-black; shafts and lower surfaces greyish-black. Secondaries much the same as the primaries, but of a still deeper shade. Breast dull greyish-glaucous, but lighter than the upper parts, and passing on the belly into verditer, which becomes lighter and greener on the vent. Rectrices beneath yellowish-grey, darker toward the tips of the longer feathers. Bill black; legs and toes —(?), claws dark horn-colour. The skin of the chin, where the feathers are scanty, of a bright red when the specimen was taken from the spirit.

I would remark that this bird is by no means to be regarded as a mere representative species or conspecies of either of the forms already known to inhabit the Mascarene islands (*Palæornis eques* or *P. wardi*), but thoroughly distinct and not very nearly allied to them, or indeed to any other species. I should have liked, according to what I hold to be the best practice in nomenclature, to have given it a specific name in some way descriptive of its appearance; but this I have found difficult, and therefore, in the belief that in this glaucous bird we see one of the "Perroquets verds & bleus" of Leguat, I have chosen a name for it which may help to commemorate the first writer who seems to have observed it—and in bestowing upon it the appellation of PALÆORNIS EXSUL have had in my mind the exile through whose means we are in some degree acquainted with the marvellous original fauna of the island which was to him productive of so much happiness as a prelude to so much misery.

Since I received the specimen above described, two bones which I believe to belong to the same species have reached me from my brother. They are a portion of a lower mandible and a fragmentary sternum, and were sent to him by Mr. Jenner as having been found in a cave with bones of *Pezophaps* and other birds, an account of which will in due time be published.

The editor of 'The Ibis' kindly offered me a figure of the type specimen of this species; but as it is unluckily that of a female bird, I refrain from giving one, trusting that before long Mr. Jenner's exertions will enable us to furnish a representative of the other sex, which is not unlikely to prove a bird of greater beauty.

Magdalene College, Cambridge,
10 November, 1871.

V.—*Notes and Descriptions of some Birds lately added to the Museum, Canterbury, New Zealand.* By Thos. H. Potts.

The number of species contained in our list of birds is slowly but steadily increasing as our scattered population gradually spreads itself over wider areas of country; thus new forms now and then fall under observation. Among the more interesting of recent acquisitions is a new species of *Apteryx*, which the writer proposes to name *A. haastii*, in compliment to Dr. Haast. In the course of the year large numbers of skins and skeletons of the too famous *Apterygidæ*, killed on the west coast, are received at the Canterbury Museum for the purpose of exchanges; so that one can imagine it within the bounds of probability that *Apteryges* will, at no distant date, be found more abundant in foreign collections of natural history and "the cabinets of the curious" than in their native wilds of the Westland ranges. Amongst scores of examples of our two Middle-Island birds, *A. oweni*, Gould, and *A. australis*, Shaw, was one skin of this new species.

The specimen which first came to hand was procured on one of the first levels from the snowy range, west coast, Middle Island. A Maori of Bruce Bay informed the collector that they (the natives) called this species of *Apteryx* Roroa, that it was not to be confused with Rowi, and that, by means of kicking, it could fight a dog. Specimen the second was received some months later, in another heavy consignment. The exact locality was not given; but there is but little room to doubt that it was obtained from the Okarito country. When one looks at these specimens, grouped with others, representing *A. oweni* and *A. australis*, one ponders on the probability of hybridization *. Here are the lunate marks of Owen's Kiwi, with the superior size and much of the tone of colour which distinguishes *A. australis*. The wing-spur of our new species is more feebly developed than in either of the other species mentioned.

Apteryx haasti, Potts. "Roroa;" Haast's Kiwi.

Specimen No. 1 (supposed to be an adult female).—Face, head, and neck dull brown, darkest in a line from the gape to and immediately behind the ear, and on the nape; upper surface irregularly barred with blackish brown and rich fulvous, each feather crossed with marks of dark brown and fulvous (approaching chestnut) on the apical bars; chin greyish brown; throat dull brown, indistinctly marked with fulvous; breast and abdomen dull brown, barred with pale fulvous; straggling hairs about the base of the bill black, some produced to the extent of $3\frac{1}{2}$ inches; bill yellowish ivory, measuring from gape to the end of mandible $5\frac{5}{8}$ inches; upper mandible overreaching lower mandible by $\frac{5}{16}$ of an inch; tarsus $2\frac{1}{2}$ inches; middle toe and claw $2\frac{5}{8}$ inches.

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* See Transactions of New-Zealand Institute, vol. ii. p. 64, vol. iii. p. 80 (*Rhipidura*).

Specimen No. 2.—Face, head, and neck dark brown; blackish brown on the nape; entire plumage richer in colour than in specimen No. 1; on the back of thigh a chestnut bar; a band of chestnut crossing the plumage above the tarsal joint; upper mandible, from gape to point, $5\frac{3}{8}$ inches; tarsus $2\frac{1}{2}$ inches; middle toe and claw $2\frac{3}{4}$ inches.

Apteryx australis, Shaw. Great Kiwi.

A beautiful variety of this interesting species of the Middle-Island Kiwi departs in a remarkable degree from the usual state of plumage. Face, head, chin, throat, and the front of the neck white; back of neck dull greyish brown; a wide streak of white on the front of the thighs, white interspersed on the breast and abdomen; a circlet of white immediately above the tarsal joint.

A very fine female specimen of Owen's Kiwi has a broad patch of white on the rump, another patch immediately behind the wing.

After looking over numbers of specimens of all the known species, including the rich-coloured *A. mantelli,* Bartl., of the North Island, one arrives at the conclusion that no specific character can be safely drawn from the skin of the tarsus being scutellate or reticulate.

Rallus pictus, Potts. Painted Rail.

Early in the month of March there was received at the Canterbury Museum a fine specimen of the Rail family which had been obtained in the neighbourhood of the Okarito lagoon, Westland. This handsome bird, at first sight, bears a strong resemblance to *Rallus pectoralis*, Gould, from the similarity in the colours and markings of its plumage; a closer examination discloses its superior size and more slender figure, some difference in the shape of the bill, and a well-defined garter above the tarsal joint, thus showing a marked departure from the form of its better-known congener.

The bill differs from that of *R. pectoralis* in presenting a form less wedge-like, more produced, with the culmen slightly raised; the shallow furrows in which the lateral nostrils are pierced are less angular; this organ also possesses a greater degree of flexibility; that it is comparatively weaker, one may judge from the relative measurements of the bills of the two species:—

	R. pectoralis.		*R. pictus.*	
	in.	lin.	in.	lin.
Length of upper mandible from gape....	1	5	1	7
Length of under mandible	1	3¾	1	6½
Width of bill at base		3½		3
Depth of bill at base		4½		3½

In addition to the peculiarities of the bill thus pointed out, it possesses a leg better adapted for wading than that of the closely allied species; the tibia is bared of feathers to the width of half an inch above the tarsal joint. It is not surprising that, amidst the dense tangled thickets of rush or cane that border the swampy lagoons of the west coast, it has hitherto generally eluded observation. Considering the shy, retiring habits of the group to which it belongs, it would there find abundant shelter for concealment, whilst its slender form, its compressed figure, almost canoe-like, is wonderfully well fitted for rapidly threading the intricate mazes of the rank aquatic or semiaquatic vegetation amidst which it finds its food. From its short concave wings, it is evident it must depend less on securing safety by flight than on the rapidity with which it can conceal itself from notice amongst the marshy vegetation of its favourite haunts. If the bill of *R. pectoralis* may be said to resemble somewhat that of *Ocydromus*, that of *R. pictus* rather shows an approach to that of *R. aquaticus*, less produced. We have heard, on very good authority, that a larger species of Rail remains yet to be procured amongst the morasses of Westland.

Bill, upper mandible dark horn-colour, lower mandible lighter; crown, occiput, and nape olive-brown, marked with black; from the base of upper mandible a narrow line of white passes in almost a straight line above the eye, merging into pale grey as it descends obliquely towards the nape; a broad stripe of chestnut commences at the base of the bill, passes through the eye, across the cheek, and meets in a broad band at the back of the neck, forming a richly coloured tippet, widest on the back of the neck; lower part of the cheek and throat pale grey and brownish grey; chin greyish, almost white; lower part of throat and breast black, each feather marked transversely with two bars of white, indistinctly tipped with pale brown; breast crossed with a band of rich but light brown, with a chestnut spot in the centre, basal portion of each feather black, apical portion crossed with two narrow black bars, shafts white; greater wing-coverts olive-brown, with occasional white and black spots, point of shoulders nearly white; primaries, of which the 2nd, 3rd, and 4th are nearly of the same length and longest, 3rd and 4th chestnut, barred on the inner and outer web with black; 1st and 2nd marked with bars of white, which on inner web are slightly crescentic: abdomen black, barred with white, lower abdomen pale fulvous; front of thighs fulvous, back of thighs slaty black: tail, shafts black, webs olive brown, darkest in the centre; middle feather with four spots of white, centre feathers of under tail-coverts black, with white bars tipped with fulvous; vent black, tipped with deep fulvous. Bill, from gape to tip of upper mandible, 1 inch 7 lines; wing, from plume, 6 inches 2 lines; tarsus 1 inch 8 lines; middle toe and claw 1 inch 7 lines, hind toe and claw 6 lines; tail 2 inches 9 lines; extreme length, from tip of mandible to end of tail, 15 inches 9 lines.

LARUS BULLERI, Potts. Buller's Gull.

The structure of this graceful sea-bird exhibits a gradual departure from our typical form of *Larus*, as in *L. scopulorum*, Forst., with which and *L. melanorhynchus*, Buller, it has been hitherto confused. An examination of the structure of the bill, the tarsus, and the foot, shows an approach to the Sternidæ in their more slender proportions, equally manifest in the slight bill, the delicate tarsus, and the feeble foot. Should this Gull be allowed as a good species, it is proposed to call it after Mr. Buller, whose name is already connected with the ornithology of New Zealand. Two specimens in the Canterbury Museum were obtained near the mouth of the Waimakeriri river in this province.

Plumage white; wings silver-grey: primaries, first black, with white shaft, first and second having an oar-shaped dash of white on the inner web, this mark slightly encroaching on the outer web; third feather, basal portion chiefly white; fourth feather, inner web silver grey, margined with black; all primaries except the first, tipped with a white spot: bill yellowish, slightly stained on each mandible, near the point, with horn-colour; tarsi and feet yellowish, claws black. Bill from gape 1 inch 9 lines, depth of bill at base 3½ lines, width of bill 3 lines; wing, from flexure, 11 inches 3 lines; tarsus 1 inch 7 lines; middle toe, with claw, 1 inch 5 lines; total length 14 inches 6 lines.

Ohinatahi,
Canterbury, July 21, 1871.

VI.—*A Revision of the Species of the Fringilline Genus* Sycalis.

By P. L. Sclater, M.A., Ph. D., F.R.S.

(Plates II. & III.)

In 'The Ibis' for January last, I attempted to give some account of the present state of our knowledge of the species of the Fringilline genus *Spermophila*. I now propose to offer to the readers of this Journal some similar remarks on the members of the genus *Sycalis*, another characteristic type of the Neotropical Fringillidæ, of which I have of late years accumulated a considerable series of specimens. My collection of this genus consists of 40 skins, referable to 8 species. I have likewise employed for comparison 18 specimens belonging to the collection of Messrs. Salvin and Godman, and referable to 6 species, and have examined the specimens in the French National Collection, where several important types are to be found.

The generic name *Sicalis* (emend. *Sycalis* = *συκαλίς*, Aristoph.) was proposed by Boie (Isis, 1828, p. 324) for four birds, *Fringilla magellanica*, Gm., *Emberiza brasiliensis*, Gm.*, *Fringilla lepida*, Gm., and *F. butyracea*, Gm. Three of these having become types of other genera, Cabanis, in 1845–46 (Tschudi's Fauna Peruana, Aves, p. 215), proposed to restrict the term *Sycalis* to the second species and its allies.

The little genus of Finches thus designated is quite distinct from every other Neotropical form, but comes very close to the African *Crithagræ*, and is perhaps, indeed, hardly separable in strictness, though it is convenient to have another name for the South-American group.

The nine species of this genus which I have had an opportunity of examining may be divided into two sections—the first of which are smaller in size, and have the bill proportionately shorter and smaller, while the second contains a group of Andean birds of rather larger dimensions, and having a larger and longer bill.

The subjoined Table may assist in the somewhat difficult task of distinguishing the first nine species of *Sycalis*. The tenth species (*S. citrina*), which I am not autoptically acquainted with, seems to stand alone in having the external rectrices spotted with white.

A. Minores : rostro breviore.	
a. Species pileo flavo : maculâ frontem totam amplectente aurantiacâ :	
a'. remigum marg. int. aureo-flavis.	
major, fronte læte aurantiacâ	1. *flaveola.*
minor, fronte magis flavâ	2. *pelzelni.*
b'. remigum marg. int. albidis	3. *columbiana.*
b. Species pileo striato : mac. front. utrinque flavâ :	
major	4. *luteola.*
minor	5. *chrysops.*
B. Majores : rostro elongatiore.	
a. remigum marginibus externis flavissimis :	
dorso toto flavo	6. *lutea.*
dorso toto fusco	7. *luteocephala.*
b. remigum et rectricum marginibus griseis :	
genis flavis : uropygio olivaceo	8. *uropygialis.*
genis canis : uropygio olivaceo	9. *aureiventris.*

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* Boie writes *Fringilla brasiliensis*, Gm., which is, no doubt, an oversight, as Gmelin places the bird in *Emberiza* (Syst. Nat. p. 872).

1. Sycalis flaveola.

Fringilla flaveola, Linn. S. N. i. p. 321.

Bruant du Brésil, Buff. Pl. Enl. 321. fig. 1.

Fringilla flava, Müller, Syst. Nat. Suppl. p. 164.

Emberiza brasiliensis, Gm. S. N. i. p. 872; Lafr. et D'Orb. Syn. Av. 1837, p. 73.

Fringilla brasiliensis, Spix, Av. Bras. i. p. 47, pl. 61. fig. 1 ♂, 2 ♀; Max. Beitr. iii. p. 614.

Crithagra brasiliensis, Bp. Consp. p. 521; Gosse, B. Jamaica, p. 245.

Sycalis brasiliensis, Tsch. Faun. Per. p. 215; Cab. in Schomb. Guian. iii. p. 679, et Mus. Hein. p. 146; Burm. Syst. Ueb. iii. p. 253; Scl. P. Z. S. 1861, p. 74; Taylor, Ibis, 1864, p. 83; Wyatt, Ibis, 1871, p. 328.

Sycalis aureipectus, Bp. Compt. Rend. xxxvii. p. 917, et Notes Orn. p. 17; Sclater, P. Z. S. 1855, p. 159; Cat. A. B. p. 126 (jr.).

Sycalis flaveola, Pelz. Orn. Bras. p. 231.

Virescenti-flava, interscapulio nigricante striato; pileo antico aurantiaco: alis caudâque nigricantibus, flavo limbatis: subtùs aureo-flava unicolor: subalaribus et remigum marginibus internis aureo-flavis: rostro corneo, mandibulâ inferiore albicante: pedibus fuscis: long. tota 5·2, alæ 3·0, caudæ 2·2, poll. Angl. et dec. *Femina* fusca, flavo tincta, pileo et dorso nigricante striatis; alis caudâque nigricantibus flavido limbatis: subtùs cineraceo-alba; pectore, crisso, tibiis, subalaribus et remigum marginibus internis flavis.

Hab. America merid. a summâ Columbiâ usque ad Brasiliam merid.

Loca certa: Santa Marta (*Wyatt*); Bogotá (*Mus. P. L. S.*); Venezuela (*Taylor*); Brit. Guiana (*Schomb.*); S. E. Brazil (*Max.* et *Burm.*); prov. S. Paolo, Ypanema, &c. (*Natt.*); Minas Geraes (*Rogers*); Eastern Peru (*Tsch.*); Bolivia, Santa Cruz de la Sierra (*D'Orb.*).

The well-known "Brazilian Canary," as this bird is often called, appears to have received names from both Linnæus and Gmelin. The appellation given by the latter has been generally adopted, and I am always unwilling to alter established nomenclature; yet, as the *Emberiza brasiliensis* is referred by Von Pelzeln to the next species, I have thought it better to revert to the older Linnean term *flaveola* for the present bird.

This species has a wide range in South America. I cannot distinguish specimens obtained by Mr. Wyatt in the valley of the Magdalena* from skins from Rio and Minas. It also occurs in Bogotá collections; and I have no doubt it was upon a somewhat brightly coloured but immature bird from the latter locality that *Sycalis aureipectus* of Bonaparte was established. M. Jules Verreaux is of the same opinion on this point; and the specimen referred to *S. aureipectus* in my American Catalogue is certainly only a young male of *S. flaveola.*

There can be no doubt about the occurrence of this Finch in Jamaica. It is mentioned by Gosse; and I have skins from Jamaica which agree in every respect with Brazilian specimens. I believe, however, that it is in all probability an imported species; and this seems to result from what Mr. Gosse has said of it.

2. SYCALIS PELZELNI.

Chuy, Azara, Apunt. i. p. 479.

Passerina flava, Vieill. Enc. Méth. p. 932 (partim).

Sycalis chloropsis, Scl. et Salv. P. Z. S. 1869, pp. 161 et 632.

Sycalis brasiliensis, Pelzeln, Orn. Bras. p. 232.

Crithagra? brasiliensis, Darwin, Zool. Beagle, ii. p. 88 (?).

Similis *S. flaveolæ,* sed paulo minor, dorso magis distinctè striato et fronte magis fulvâ neque aurantiacâ: long. tota 4·9, alæ 2·8, caudæ 2·0. *Fem.* suprà fusca, omnino nigro striata, uropygio et rectricum marginibus externis vix virentibus: subtùs alba, pectore et lateribus nigro striolatis: subalaribus et rectricum remigumque marginibus internis flavicantibus.

Hab. Inner Brazil, Paraguay, and La Plata.

Loca exacta. Cuyaba (*Natt.*); Paraguay (*Azara*); vic. of Buenos Ayres (*Haslehust*).

This southern representative of *S. flaveola* was at first wrongly referred by myself and Mr. Salvin to *S. chloropsis.* It is considered by Von Pelzeln to be the true *Emberiza brasiliensis* of Gmelin; but this is, to say the least of it, very dubious, and contrary to the opinion of nearly every other writer.

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* *Cf.* Wyatt, 'Ibis,' 1871, p. 328.

Under these circumstances I was intending to adopt the specific name *flava* for this bird (ex *Passerina flava,* Vieill.), when I observed that this term is applied by Mr. G. R. Gray* to *Sycalis flaveola* (ex *Fringilla flava,* Müller). Thus it would only cause confusion to attempt to use Vieillot's name; and I therefore propose to call the species *Sycalis pelzelni,* after our excellent Honorary Member Herr A. v. Pelzeln, who, according to my belief, misapplied the term *brasiliensis* to it.

It must be observed that while the male of this *Sycalis* much resembles the corresponding sex of *S. flaveola,* the female is very different, having the whole upper surface striated, and no yellow on the breast and crissum below.

3. SYCALIS COLUMBIANA.

Sycalis columbiana, Cab. Mus. Hein. i. p. 147; Scl. Cat. A. B. p. 126; Pelzeln, Orn. Bras. p. 231.

Sycalis brasiliensis, Scl. et Salv. P. Z. S. 1867, p. 573.

Similis *S. flaveolæ,* sed minor, dorso viridescenti-flavo, striis nullis, et remigum marginibus internis albidis flavo tinctis neque aureo-flavis: long. tota 4·3, alæ 2·3, caudæ 1·5.

Hab. Venezuela, Guiana, and Lower Amazonia.

Loca exacta. Puerto Cabello (*Cab.*); Barra do Rio Negro (*Natt.*).

This species is very closely allied to *S. flaveola,* but may, I believe, be distinguished in every stage by the inner margins of the remiges being quite narrow and of a pale yellowish white, instead of bright yellow as in *S. flaveola.* The difference is still more appreciable when the upper surfaces of the primaries in the two species are compared. It is also smaller, and in the adult male shows no striations on the back.

Nattererian skins agree well with the specimens registered as of this species in my American Catalogue. But the locality of "Trinidad" there given may be erroneous, resting only on a dealer's authority.

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* Hand-list of B. ii. p. 84.

4. SYCALIS LUTEOLA.

a. *Specimina Chiliana.*

Fringilla arvensis, Kittl. Mém. prés. Ac. St.-Pét. 1831, p. 4.

Sycalis arvensis, Sclater, Cat. A. B. p. 126; P. Z. S. 1867, p. 323.

Crithagra brevirostris, Phil. et Landb. Cat. Aves Chil. p. 26.

b. *Specimina Argentina.*

Chipiu, Azara, Apunt. i. p. 475.

Crithagra? brevirostris, Gould, Zool. Voy. Beagle, iii. p. 88.

Sycalis luteiventris, Burm. La Plata-Reise, ii. p. 489.

Sycalis arvensis, Scl. et Salv. P. Z. S. 1868, p. 140.

c. *Specimina Peruviana.*

Fringilla luteiventris, Meyen, N. Act. Acad. Leopold. xvi. Suppl. p. 87 (1834), pl. 12. fig. 3.

Crithagra luteiventris, Bp. Consp. i. p. 521.

Sycalis luteiventris, Scl. P. Z. S. 1867, p. 342.

Sycalis luteiventris, Scl. et Salv. P. Z. S. 1869, p. 599.

d. *Specimina Brasiliana.*

Crithagra hilarii, Bp. Consp. p. 521; Cab. Mus. Hein. p. 147; Burm. Syst. Ueb. iii. p. 254.

Sycalis hilarii, Pelz. Orn. Bras. p. 232.

e. *Specimina Guianensia.*

Emberiza luteola, Sparrm. Mus. Carls. t. 93.

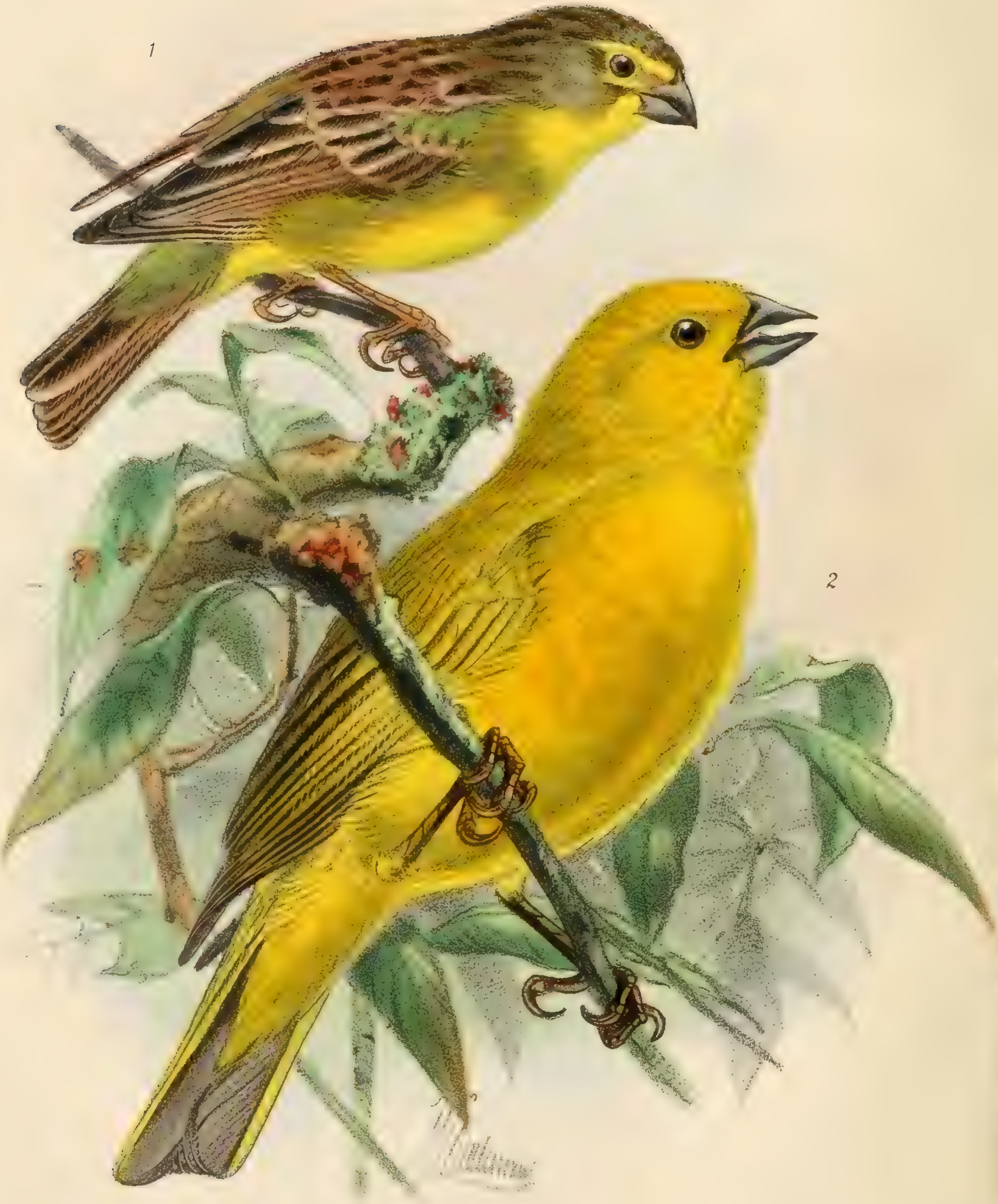
Sycalis luteola, Sund. K. Vet. Ak. Handl. ii. No. 3. p. 14.

Sycalis minor, Cab. in Schomb. Guian. iii. p. 679; Pelz. Orn. Bras. p. 232.

Sycalis hilarii, Scl. Cat. A. B. p. 126; Scl. et Salv. P. Z. S. 1867, p. 573.

Suprà fusca, nigro variegata, uropygio virescente; alis caudâque nigricantibus fusco limbatis: loris et regione oculari cum corpore subtùs flavis: long. tota 5·0, alæ 3·0, caudæ 2·1. *Fem.* gutture et pectore toto cum hypochondriis fuscescentibus abdomine medio flavo.

Hab. in Americâ merid. universâ à Columbiâ usque ad Chiliam et remp. Argentinam.



J G Keulemans lith
M & N Hanhart imp

1 SYCALIS CHRYSOPS.
2 — LUTEA

I have skins of this *Sycalis* in my collection from Bogotá, Lima (*Nation*); Cuenca, in Ecuador (*Fraser*); Arequipa, Peru (*Whitely*); Santiago (*Landbeck*); Buenos Ayres (*Hudson*); Matto Grosso (*Natterer*), and Mexiana, Lower Amazon (*Wallace*). Upon comparing them together, I am of opinion that it is not possible to differentiate the various local forms satisfactorily, and that it is better to refer them all to one widely diffused species. Guianan specimens are certainly smaller in size and duller in colouring; Chilian skins are rather largest; whilst those from Peru and Columbia are brightest, especially on the lower plumage.

I believe this to be a bird of the campos, or grassy plains, not of the forests. Burmeister met with "*Sycalis hilarii*" in the campos of Inner Brazil, and tells us that "*S. luteiventris*" is one of the commonest birds of La Plata. The species is probably found throughout its range in similar tracts of country.

. I may remark that Bonaparte, the original author of the name *hilarii*, characterizes it (very correctly) as "similis (*Crith.*) *luteiventri*" *, and that Burmeister has already united *Sycalis minor* to *S. hilarii* †.

5. SYCALIS CHRYSOPS. (Plate II. fig. 1.)

Sycalis chrysops, Sclater, P. Z. S. 1861, p. 376; Salvin, Ibis, 1866, p. 194.

Similis *S. luteolæ*, sed minor, facie magis flavâ et colore dorsi fusco rufescentiore.

Hab. Mexico et Guatemala.

I based this species in 1861 on a specimen in a Mexican collection received from M. Parzudaki, which is still in my possession, and is the subject of the accompanying Plate. I was subsequently rather inclined to think there might have been some mistake in the locality, and that the specimen in question might be only a dwarfed Bogotá skin of *S. luteola*. But Mr. Salvin has an example of what is obviously the same bird, though in immature plumage, shot near Dueñas in Guatemala, in September 1862. It is therefore certain that there *does* exist a Central-American species of *Sycalis*, which may be called *S. chrysops* until its identity with *S. luteola* has been demonstrated.

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* Consp. i. p. 521.

† Syst. Uebers. ii. p. 254.

6. SYCALIS LUTEA. (Plate II. fig. 2.)

Emberiza lutea, Lafr. et D'Orb. Syn. Av. in Mag. de Zool. 1837, p. 74.

Sycalis chloris, Cab. in Tsch. F. P. Aves, p. 216 (1846).

Sycalis chloris, Scl. et Salv. P. Z. S. 1868, p. 568, et 1869, p. 153.

Crithagra chloropsis, Bp. Consp. p. 521 (1850).

Obscurè flava, subtùs et in uropygio clarior: alis et caudâ fusconigris extùs flavo limbatis: subalaribus pallidè flavis; remigum marginibus internis pallidè fuscis: long. tota 5·5, alæ 3·2, caudæ 2·1. *Fem.* omninò obscurior et fusco præcipuè suprà induta.

Hab. Andes of Bolivia and Peru.

I first met with this fine species in Mr. Whitely's collections from Western Peru, and determined it, I believe correctly, as *S. chloris* of Cabanis. Subsequently, on examining the marked specimens of *Sycalis* in the Paris Museum, I found that it was identical with *Crithagra chloropsis* of Bonaparte. Still later I discovered that specimens of the same species had been obtained by D'Orbigny in Bolivia, and described by him and Lafresnaye in 1837 as *Emberiza lutea.* This fact was doubtless overlooked by Bonaparte, from the species being altogether omitted in the 'Ornithology' of D'Orbigny's Voyage.

The typical specimen of *Crithagra chloropsis,* Bp., was (according to my notes taken at Paris) collected in Bolivia by Mr. Pentland.

7. SYCALIS LUTEOCEPHALA.

Emberiza luteocephala, Lafr. et D'Orb. Syn. Av. in Mag. de Zool. 1837, p. 74; D'Orb. Voy. Ois. p. 360, pl. 44. fig. 2.

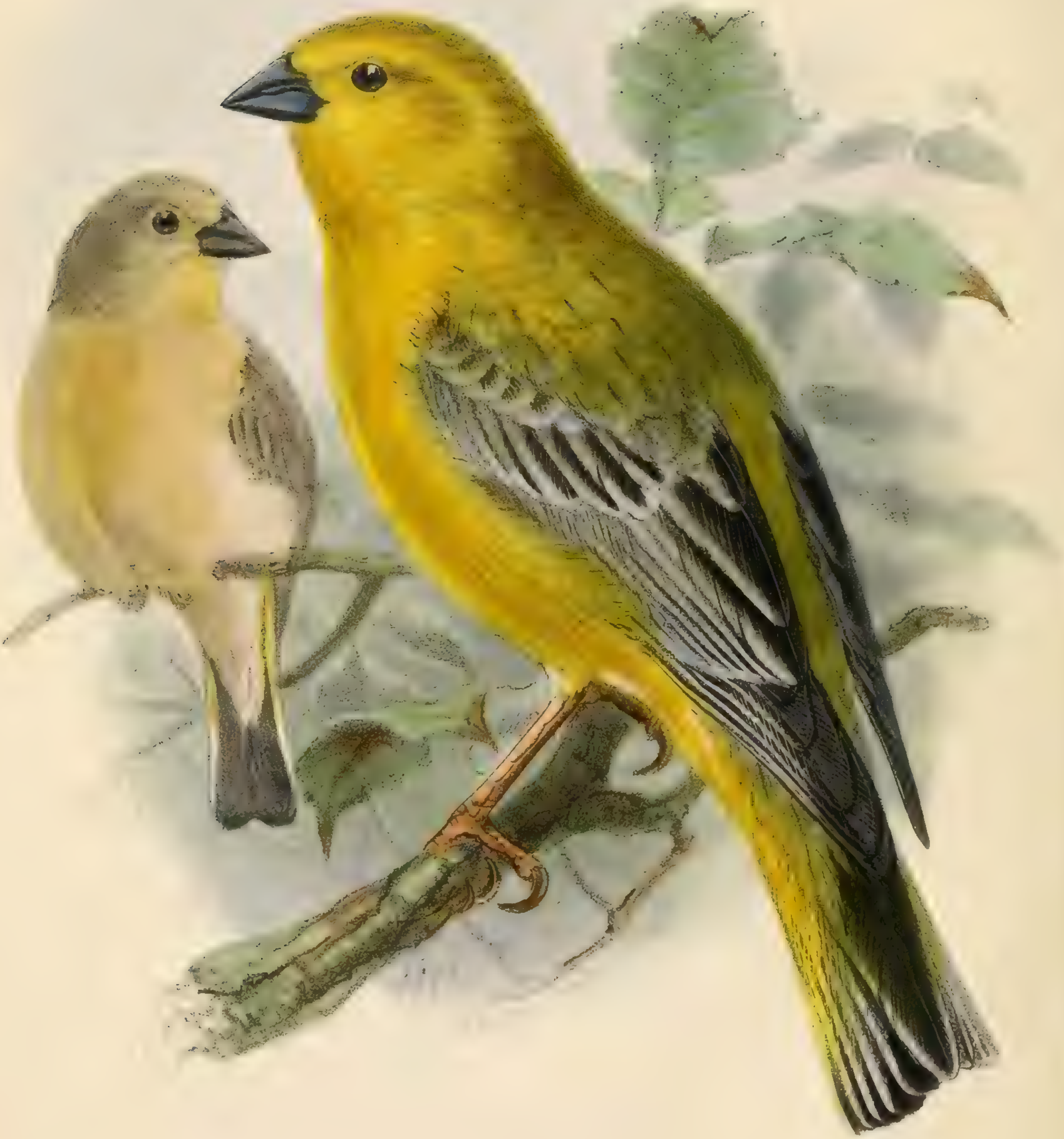
Crithagra luteocephala, Bp. Consp. i. p. 521.

Fusca: capite undique, et abdomine toto medio cum marginibus rectricum et remigum flavissimis.

Hab. Andes of Bolivia.

D'Orbigny found this *Sycalis* common in flocks on the eastern slope of the Cordillera from Cochabamba and Valle Grande to Chuquisaca. I have examined his specimens in the Paris Museum, and likewise skins in Mr. Eyton's collection obtained by Bridges in Bolivia, but have never been able to obtain examples of this species myself.

Ibis 1872 Pl. II.



J. Keulemans lith. M & N Hanhart imp.

SYCALIS AUREIVENTRIS ♂ et ♀.

8. SYCALIS UROPYGIALIS.

Emberiza uropygialis, Lafr. et D'Orb. Syn. Av. p. 75 (1837).

Crithagra pentlandi, Bp. Consp. i. p. 521 (1850).

Sycalis chloropis, Burm. J. f. O. viii. p. 257, et La Plata-Reise, ii. p. 489 (?).

Affinis *S. luteocephalæ,* sed uropygio olivaceo, genis canis, remigibus griseo marginatis, et corpore subtus omnino flavo.

Hab. Andes of Bolivia.

This is likewise a discovery of D'Orbigny's, who met with the species on the Andes of Bolivia, and, along with Lafresnaye, described it in the 'Synopsis Avium,' but made no mention of it in his 'Voyage.' The consequence was that it was overlooked by Bonaparte, and redescribed in the 'Conspectus' as *Crithagra pentlandi,* from specimens obtained by Mr. Pentland in Bolivia, and presented to the Paris Museum.

I have examined both D'Orbigny's and Pentland's specimens at Paris.

According to my notes, taken in Paris, the bird obtained by Burmeister in Mendoza and Catamarca, and named by him *Sycalis chloropis,* is referable to this species, though Burmeister's description (if correct) rather points to *S. luteocephala.* I have one of Burmeister's skins in my collection, and Mr. Salvin has another; but they are both in immature plumage, and are not sufficient to decide the question.

9. SYCALIS AUREIVENTRIS. (Plate III.)

Sycalis aureiventris, Ph. et Landb. An. Univ. Chil. 1864, p. 342, Wiegm. Arch. 1864, i. p. 49, et Cat. Aves Chilenas, p. 24.

Sycalis aureiventris, Sclater, P. Z. S. 1867, p. 323.

Flava, subtùs clarior: interscapulio et hypochondriis grisescentibus: alis fusco-nigris griseo marginatis: rectricibus fusco-nigris ad basin extùs flavo angustè limbatis: long. tota 6·0, alæ 3·7, caudæ 2·2. *Fem.* fusca, uropygio flavo tincto; alis caudâque fusco-nigris, griseo marginatis: subtùs ochraceo-fusca, medialiter flavo induta.

Hab. Chili, Cordilleras of the province of Santiago.

I have several specimens of this fine species of *Sycalis,* received from Mr. Landbeck. It seems quite distinct from the two preceding species—though I should like to compare it with *S. uropygialis,* which I have not yet been able to do.

Messrs. Philippi and Landbeck have given us an excellent account of its nesting and habits.

10. SYCALIS CITRINA.

Emberiza citrina, Natt. MS.

Sycalis citrina, Pelzeln, Orn. Bras. pp. 232 et 333.

Hab. San Paulo (*Natt.*).

This species seems to be quite distinct from any other known *Sycalis,* having a white spot on the inner web of the two outer tail-feathers. I have never been fortunate enough to come across a specimen of it. It is, perhaps, the same as *Fringilla xanthorrhoa* of Bonaparte (J. Ac. Sc. Phil. iv. p. 350 (1825), et Consp. p. 521), though, as v. Pelzeln shows, Bonaparte's description does not quite agree with it. But I know of no other bird to which Bonaparte's description is more applicable.

Appendix specierum dubitatarum.

In Mr. G. R. Gray's most useful 'Hand-list of Birds' (ii. p. 84) twenty species are assigned to *Sycalis.* Of these I have already disposed of eighteen. The remaining two are:—

No. 7238.—*S. plumbea. Chlorospiza plumbea,* Ph. and Landb. (Wiegm. Arch. 1864, p. 47), which is *Phrygilus unicolor* (see my remarks, P. Z. S. 1867, p. 322); and

No. 7239.—*S. erythronota. Chlorospiza erythronota,* Ph. and Landb. ibid. 1863, p. 121, which is in all probability also a *Phrygilus,* but is not known to me.

VII.—*On Nyctale kirtlandi.*

By D. G. ELLIOT, F.L.S., F.Z.S., &c.

IN the fifth volume of Shaw's 'Naturalist's Miscellany,' an Owl is described and figured as *Strix albifrons,* and its *habitat* stated to be North America, particularly Canada. In 1852, Dr. Hoy published, in the 'Proceedings of the Academy of Natural Sciences of Philadelphia,' the same bird under the name of *Nyctale kirtlandi,* stating that two specimens had been procured; and this name was continued by Cassin in his 'Illustrations of the Birds of California,' and a figure given. Baird, Cooper, and others, in their respective works, have also kept this form distinct, but restored Shaw's name of *albifrons,* making *N. kirtlandi,* Hoy, a synonym. So few specimens in the plumage of *N. albifrons* having ever been seen, this bird has been allowed to retain a place among the feathered tribes of America as a species; and I am happy to be able, from proofs which have lately come into my hands, to accord this bird its proper place in the American and European avifaunas. In a small collection of birds, lately received by Mr. R. B. Sharpe, to enable him to make some investigations for his work on the birds of Europe, there was a specimen of an Owl from the neighbourhood of Barcelonnette, in the Basses-Alpes, marked as the young of *Strix tengmalmi,* which I at once perceived to be the bird named by Shaw and Hoy respectively. In order to make its parentage more sure, Mr. H. E. Dresser, and Mr. Bond, at my request, kindly placed in my hands a young and old of *Nyctale tengmalmi.* Mr. Dresser's specimen of the young bird is from Wytegra, Lake Onega, Russia, and that of Mr. Bond from Granheim, Norway; so I have representatives from most distant localities. The specimen belonging to Mr. Sharpe from Barcelonnette is the youngest of all, and approches closest to that described by Dr. Hoy; the others, although in similar plumage, have begun to exhibit the mottling on the lower part of the breast. There is no doubt whatever about these examples being the young of the true *N. tengmalmi,* as every particular is recorded upon the labels that came with them. As there has been considerable doubt among ornithologists regarding the specific distinctness between the *N. tengmalmi* of Europe and *N. richardsoni* of America, I thought that this would be a favourable opportunity, while investigating the young, to examine also the adult birds from the two continents. The result arrived at is that they are identical. In fact, there are two specimens lying before me—one from Norrland, Sweden, belonging to Messrs. Sharpe and Dresser, taken from their magnificent collection of European Birds, and one procured in North America, from Mr. Dresser's private collection—between which there is no appreciable difference whatever, either as regards colour or markings, which, as every ornithologist knows, is very rarely found among specimens of so variable a family as the Strigidæ, particularly among the smaller species. As I am not aware that the young of *Nyctale tengmalmi* (as I propose to call all those heretofore known under this name and that of *richardsoni*) in its various stages has ever been especially described, I have thought it might perhaps be useful to ornithologists to give a full description of these most interesting specimens committed to my charge, and to add a list of the synonyms which will properly belong to the species.

NYCTALE TENGMALMI.

Strix tengmalmi, Gmel. Syst. Nat. p. 291 (1788); Lath. Ind. Orn. p. 64. sp. 42; Swain. & Rich. Faun. Bor.-Amer. (Birds), pl. 32, p. 94; Aud. Orn. Biog. vol. iv. pl. 509; Id. B. of Amer. pl. 380. figs. 1 & 2; Id. B. A. 8vo ed. vol. i. pl. 32; Temm. Man. d'Ornith. vol. i. p. 94; Naum. Vög. Deutsch. vol. i.

Noctua tengmalmi, Yarr. Brit. Birds, vol. i. p. 146; Selby, Brit. Orn. vol. i. p. 105; Gould, B. of Eur. vol. i. pl. 49.

Syrnium tengmalmi, Eyton, Rare Brit. Birds, p. 90.

Strix albifrons, Shaw, Nat. Misc. vol. v. pl. 171.

Nyctale albifrons, Cassin, Birds of Calif. p. 187; Baird, B. Amer. p. 57; Coues, Proc. Acad. Nat. Scien. (1866) p. 50.

Nyctale richardsoni, Bonap. Comp. List (1838), p. 7; Baird, B. Amer. p. 57; Cassin, Birds of Calif. p. 185. sp. 1.

Nyctale kirtlandi, Hoy, Proc. Acad. Scien. Phil. (1852) p. 210; Cassin, Birds of Calif. p. 63.

Nyctala tengmalmi, Newton, 4th edit. Yarr. Brit. Birds, p. 154.

Adult Male.—Upper part of head, and entire upper parts, umber-brown, rather thickly spotted with white on the head; the spots fewer but larger on the nape, wing-coverts, and secondaries; primaries same as back, spotted on both webs with white, the spots on the inner webs being largest; tail also umber-brown, both webs having four white spots equidistant from each other; a white ring around the eyes; bill covered with black bristly feathers; facial disk white, some of the feathers blackish on their edges; a brown narrow ring at the outer edge encircles the disk; breast and under parts white, mottled with rufous brown; centre of breast and abdomen nearly pure white; under tail-coverts white, with a few rufous brown streaks. The specimen described was obtained from Sweden. A specimen from America is precisely similar, so that one description will answer for them both.

Adult Female.—Upper parts rufous brown, with small white spots on the forehead, larger ones on the nape and back; secondaries with white spots at equal distances on both webs, largest on the inner webs; primaries with rufous-white spots on the outer webs only; facial disk light brown on the outer side, surrounded by a line of dark reddish-brown; white above the eyes, black between the eyes and bill; throat white, the outer brown edge of the facial disk extending across the upper part of the breast; lower parts white, mottled with reddish brown; tail same colour as the back, with five equidistant white spots on each web; tarsi and feet yellowish white. This is the red variety of this species, and may not in any way be considered a sexual plumage, or belonging particularly to the female. The red and brown styles of dress, as in the *Scops asio* of North America, are apparently assumed without regard to sex or age.

Young Female.—Head and upper parts dark umber-brown, unspotted; wings same colour, spotted with white on both webs of secondaries, and primaries like the adult; tail also same as the adult; stripe over the eye from the nostrils, and also a patch under the eye at base of bill, white; facial disk blackish brown; upper part of breast same as the back, rest of underparts yellowish white, the feathers having broad central lines of dark brown; flanks and under tail-coverts yellowish white; feet and tarsi yellowish white, spotted with rufous brown; bill blackish at base, horn-colour at tip. A specimen still younger than the preceding has head, entire upper parts, and upper part of the breast blackish brown; spot over the eyes and base of bristly feathers at the bill white; lower part of breast yellowish brown, a few white spots on the scapulars, and indications on the outer webs of some of the primaries; tail dark brown, and white spots on middle feather; bill greenish at tip, blackish at base.

From the specimens before me, it would appear that this species is very dark when young, and without spots, but becomes lighter and more spotted as it becomes older, and puts on the dress of the mature bird. At all stages of plumage, however, it shows the white over the eyes and at the base of the bill, which caused its first describers to give to it the name of *albifrons*.

VIII.—*Observations on* Picicorvus columbianus.

By Elliott Coues, M.D., U. S. A.

I have no hesitation in inviting your attention to a bird that lacks a biographer, though it is one thoroughly known in the dried state. By bringing together the substance of several detached notices that have appeared, and adding, it may be, some further information obtained whilst I was in the West, we may have an account deficient in little, if any thing.

I should not even allude to the well-known intimate affinity of Clarke's Crow with the European Nutcracker, did I not purpose to illustrate by this means a rule of some general applicability. In this case of typical representation of one genus by another, we have an excellent example of the fact that a number of European birds find their nearest American relations in the species of *Western* North America, instead of those of the eastern province. Sometimes there is actual specific identity; again there is only a differentiation of the same species into geographical races, frequently with positive specific distinctness; in birds of the same genus, either the genus itself is confined to the West, or else, while the genus reaches across America, its western species are more particularly like the European than its eastern ones are; and, lastly, certain genera, confined to the West, are strictly *locum tenentia* of European genera. In the following Table examples of each of these kinds and degrees of relationship are illustrated, more or less perfectly: doubtless others might be added; but these will suffice:—

EUROPEAN.	WESTERN AMERICAN.
Cinclus aquaticus.	Cinclus mexicanus.
Budytes flava.	Budytes flava.
Phyllopneuste, sp. variæ.	Phyllopneuste kennicotti.
Ægithalus, *et aff.*	Psaltriparus, sp.; Auriparus.
Lophophanes cristatus.	Lophophanes wollweberi.
Coccothraustes vulgaris.	Hesperiphona vespertina.
Pyrrhula coccinea.	Pyrrhula coccinea, var. cassini *.
Nucifraga caryocatactes.	Picicorvus columbianus.
Cypselus apus; C. melba.	Panyptila *et* Nephocœtes.
Falco lanarius, *et aff.*	Falco polyagrus.
Buteo vulgaris.	Buteo swainsoni (*Bryant*).
Columba livia; C. palumbus; C. œnas.	Columba fasciata; C. flavirostris.
Ægialites cantiaca.	Ægialitis nivosa (=cantiacus?).
Anser albifrons.	Anser gambelli (chiefly western).
Somateria stelleri.	Somateria stelleri.
Colymbus arcticus.	Colymbus arcticus, var. pacificus.
Podiceps auritus (*auct. nec* L.?).	Podiceps californicus.

But, close as the relations of *Picicorvus* are to *Nucifraga*, we do not indorse the reference of the former to the latter genus, so long as we are to employ generic names at their present slight valuation; and still less can we assent to the recent inclusion of *Gymnokitta* under *Nucifraga*. The bill of *G. cyanocephala* has a peculiar shape, recalling that of *Sturnella*, while the patent nostrils are a rare and remarkable feature among *Corvidæ*. The three genera may very well stand separate, even if contiguous; although doubtless true *Corvinæ*, they are hard upon the obscure boundary-line of the subfamily, where the Crows pass insensibly into the Jays.

Clarke's Crow, first described by Wilson, with the intimation that it inhabited "the shores of the Columbia, and the adjacent country," may be considered one of the characteristic birds of the Rocky-Mountain region of the United States, and to extend thence to the Pacific; but to this general indication of habitat we can now give much more precision. The northernmost record I have seen, is the one Mr. W. H. Dall gives (Trans.

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* [*Cf.* Tristram, Ibis, 1871, p. 231.—ED.]

Chicago Acad. 1869, p. 286), mentioning a specimen collected at Sitka by Bischoff. In the other direction we have no Mexican quotations to my knowledge; nor is the species noticed in the Mexican Boundary Survey: but this evidence is only negative; and, from what is known of some corresponding cases, I should not like to affirm that the bird may not pass to the south of the United States, along certain high lines where decrease of latitude is compensated for by increase of altitude. Still our positive evidence goes far towards fixing the limit somewhere about 34° N. We may cite the following as references approximating towards this parallel:—Mimbres to Rio Grande, T. C. Henry (see Baird, B. N. A. 1858, 573); Canton, Burgwyn, N. M., W. W. Anderson (Baird, *op. cit.* 925); 75 miles west of Albuquerque, N. M., C. B. R. Kennerly (Pac. R. R. Rep. x. 1859, iv. 32); Fort Whipple, Ariz., Coues (Pr. A. Sc. Philad. 1866, 55); Fort Tejon, Col. J. Xantus (see Coop. Cal. Birds, i. 298). To the eastward, Clarke's Crow has been found by Dr. Cooper in Nebraska, near Fort Kearney, which lies in long. 99° 6′ W. (Greenw.), about 3000 feet above sea-level, and by Dr. Suckley on Milk River, in the same State, 200 miles east of the Rocky Mountains. These are probably extreme instances. In mentioning above a westward extent "to the Pacific" I must not be taken literally (for I do not know that the bird ever comes down to the sea-level), but as meaning that it inhabits the mountains west of the main chain—namely, the Sierra Nevadas of California, the Cascade Mountains of Oregon, and, finally, the coast-range of both these countries.

We have thus circumscribed the range of Clarke's Crow with probably a close approximation to accuracy; but it is not the fact that the bird actually inhabits all the area within the salient points indicated. Such is not the case; and this brings us to the matter of its distribution according to altitude. To begin at the top, we find *Picicorvus* as high up the mountains as probably any bird goes, not even excepting *Lagopus leucurus*. "While crossing the Cascade Mountains," says Dr. Newberry (P. R. R. Rep. vi. 1857, pt. iv. p. 83), "at the line of perpetual snow, 7000 feet above the sea-level, I have seen this bird, with Lewis's Woodpecker (*Melanerpes torquatus*), flying over the snow-covered peaks 3000 feet above us." The few peaks that exceed 10,000 feet are not so much higher that we may not reasonably suppose them to be visited (sometimes, at any rate) by Clarke's Crow, in which we most certainly recognize one of the most thoroughly alpine of our birds. The author just quoted has, in the same place, indicated, on the other hand, the usual lowest descent of the species, which never, where he saw it, descended "to a lower altitude than about 4000 feet." It does, however, come somewhat further down: the Fort-Kearney citation, just given, is an instance of this; and others could be mentioned: thus Fort Colville, near where Mr. Lord found the bird breeding, is only 2800 feet above sea-level, according to official reports. Probably this is somewhat exceptional, and at any rate must be taken in connexion with the high latitude of the locality (48° 41′ N.). On the whole, I should not be inclined to place the usual range, in an average latitude, lower than 4000 feet, as given by Dr. Newberry. In a word, Clarke's Crow is emphatically a bird of the coniferous zone of vegetation; its range is to be mapped out rather with reference to this than to either altitude or latitude; for these are complementary to each other, zoologically speaking, and within its own faunal area it has occurred in so many different localities that we may fairly consider its range coextensive with pine-forests.

Like others of its family, of hardy nature, and subsisting upon substances procurable at all seasons, Clarke's Crow is not a migrant in the ordinary sense of the word; that is to say, it does not pass regularly north and south at stated intervals: collectively, indeed, the species may be termed stationary; but it by no means follows that all the individuals that compose it are localized. On the contrary, it is a restless bird, scurrying about the mountains, appearing and disappearing irregularly, and sometimes unaccountably, few special localities probably, if any, seeing it the year round. The nearest approach to regularity of movement that we can make out seems to be its flying *down* the mountains at the approach of rigorous weather, in lieu of retreating southward, and its returning in spring to elevated places. This may be pretty safely asserted for latitudes from 45° southward, although, as we have seen, it breeds very low down at 48°. Thus, at Fort Whipple, Arizona (near 35° 30′, and from 4000 to 5000 feet high), I never saw one in summer, though it was very abundant at irregular intervals from October till March; and I have no doubt that it went up the neighbouring San-Francisco mountains, to twice the elevation or more, to breed there, along with the *Gymnokitta*. In all these points, it will be seen that Clarke's Crow is not peculiar, but recalls many parallel cases.

From what has gone before, what I shall have to say of the bird's food will be anticipated. Pine-seeds are not its exclusive diet, to be sure, all the family being too nearly omnivorous for this; but these fruits form by far the greater part of its nourishment. It also eats cedar-berries (*Juniperus*), and the acorns of the scrubby oaks that grow in the glades of the lower mountain-valleys that the bird visits. Of the number of birds that feed from pine-cones, only one, the Crossbill, has a special apparatus for shelling out the seeds; and it is curious to observe how differently the others go about it. The Long-crested Jay (*Cyanura macrolopha*), for example, will hold a cone under its feet, like a Hawk a small bird, and dig out the seeds; or it will carry a cone in its bill to stick in a crotch, and then hammer at it like a Nuthatch. I have never seen Clarke's Crow go to work in either of these ways: it pries directly into the scales of the strobile with its long conico-cuneate bill, and gouges out the seeds, meanwhile often hanging to the bunch of cones head downwards, like a Thistle-bird (*Chrysomitris tristis*) swinging under the globular ament of a *Platanus*. How much animal diet the bird approves of, I can hardly say; but it certainly does eat insects. Dr. Cooper has noticed the birds "pecking at dead bark to obtain insects, and flying short distances after them, like Woodpeckers" (*op. cit.* 290); and I have often witnessed the same thing. It does not seem to come down to the ground so often as other birds of its tribe; and what it gets there is uncertain; perhaps, however, it then gathers other kinds of seeds and insects for variety, and no doubt picks up gravel to help to grind the tough pine-seeds it harvests above. We have another evidence of its very slightly terrestrial habits in the length, curvature, and sharpness of its claws (which, however, are not "raptorial" at all, as Wilson hastily surmised), in which features I see an adaptation to clinging on pine-cones, that would speedily be interfered with if the bird spent much of its time on the ground. I may add here that, when on the ground, the bird does not hop like a Jay, but walks erect, firmly and easily, like a Crow—a fact that may have some weight in classification.

The first bird of this kind I ever saw alive was brought to me at Fort Whipple, in winter, by an old hunter, who had winged it with a pistol-bullet as it came about his cabin forgetting its natural shyness in the extreme of hunger. Notwithstanding that one pinion had been shot away, it appeared "chipper and peart," took kindly to bread and meat, and soon became quite tame and amusing. Contrary to what I should have expected, it was silent (except when handled, which it did not like), appeared to be of a reflective and inquiring turn of mind, and, when not meditating on the back of a chair, used to go about examining the furniture with grave curiosity, yet evidently bent upon preserving a *nil admirari* deportment. I came to like my strange visitor—perhaps the first one ever entertained in a civilized way—when it died, doubtless from the effects of its wound, after a brief illness marked by complete anorexia and rapid marasmus.

How it may be during the breeding-season I do not know; but at other times Clarke's Crow is decidedly gregarious; you will be more likely to see fifty together than one alone; and sometimes the vagabond troops are still larger. Likewise it is one of the noisiest of birds; a flock feeding or amusing themselves in the top of a pine tree will make more noise than as many Jays, which is enough to say on this score. The notes cannot be described; in fact they are not "notes" at all, the voice being a strident discord of prolonged screaming that must be heard to be duly appreciated. Sometimes, however, the birds are as still as mice—for example, when they are not assured their position is perfectly safe. The approach of a suspicious character, as the inevitable naturalist, or some other equally obnoxious party, is very apt to silence the whole flock, and send them trooping off together, unless, indeed, they are frightened enough to disperse without thinking of each other. This shyness is a marked trait: hardly any of our birds (certainly none of the smaller kinds) are more difficult to secure under ordinary circumstances. I would as soon try to steal upon a Common Crow that had observed me as attempt the same with one of Clarke's kind; and moreover they keep on the tops of trees so high that small shot may fail to bring them down. It is best, after a flock is once alarmed and dispersed, to keep perfectly still for a while, and then skulk cautiously along, with a sharp eye for the tree-tops, where most likely some that stayed behind, hoping for concealment in the thick foliage, will be noticed hopping about after their first alarm. Occasionally a different and easier way is open; for these Crows, like the Long-crested and other Jays, sometimes pitch, *en masse,* into a thick tree, and sit motionless, however nearly approached. Under these circumstances several may be procured in rapid succession before the flock starts off again. This is something like what has been observed with certain Grouse and Ptarmigan.

Clarke's Crow has two different modes of flight—one for long stretches, the other for short reaches. When on a journey, it flies with some rapidity, in a perfectly straight steady course, with regular vigorous wing-beats, much like Maximilian's Jay under the same circumstances. Its other flight, as when it swings itself from tree to tree, is swifter and undulating; the wings are alternately spread and nearly closed, and the bird then rises and falls like a Woodpecker. It has also other traits, difficult to specify, but readily observable, that strongly remind one of a Woodpecker; so that whether Bonaparte made his genus *Picicorvus* from *Picus* or *Pica,* in neither case was he far wrong.

I know nothing of the mode of propagation of this bird from personal observation; and until very recently its nest and eggs had not been brought to the notice of naturalists. But the desired information in this matter has been happily supplied by Mr. Lord, who found the birds breeding, and published the first, and, so far as I know, the only account that has appeared. I have not his notice at hand for reference;

but Cooper (*l. c.*) puts the case in this shape:—"Near Fort Colville, Washington Territory, Mr. J. K. Lord found this species arriving in May in immense flocks, making a tremendous chattering for about a week, and then pairing off. A nest he saw was on the top of a pine tree 200 feet high, which was cut down on the boundary. It was composed of fir twigs, bark, leaves of pine, and fine root-fibres, with some moss and gray lichen—very large and shallow. The eggs were about four, of a light bluish-green."

In conclusion, I would say that I have collected, for convenience of future reference, a number of quotations, which, however, I would recommend you to print, if at all, in a foot-note. Synonymy does not make "juicy" reading; and the dryness of what you have already had renders further exsiccation inexpedient!—

Corvus columbianus, Wils. A. O. iii. 1811, p. 29, pl. 20, f. 2 (descr. orig.); Bp. Obs. Wils. 1824, no. 38, and Syn. 1828, 57; Jamieson's ed. Wils. i. 1831, 249; Nutt. Man. Orn. i. 1832, 218; Brewer's ed. Wils. 1840, 209, f. 94; Blyth, in Cuv. R. A. Am. ed. 1849, 204.

Nucifraga columbiana, Aud. O. B. iv. 1838, 459, pl. 362, and Syn. 1839, 156, and B. A. iv. 1842, 127, pl. 235; Bp. C. & G. L. 1838, p. 28; Nutt. Man. Orn. 1840, i. 251.

Nucifraga (*Picicorvus*) *columbiana*, Gray, Hand-L. pt. ii. p. 9.

Picicorvus columbianus, Bp. C. A. 1850, i. 384; Newberry, P. R. R. Rep. vi. 1857, pt. iv. 83; Baird, *ibid.* ix. 1858, p. 573 (R. Mts. to Pac.; E. to Ft. Kearney, p. 925, Canton Burgywn, N. M. & Ft. Tejon, Cal.); Kennerly, *ibid.* x. pt. iv. 32 (75 m. W. Albuquerque, N.W.); Coop. & Suckl. *ibid.* xii. pt. ii. 212 (Wash. & Oreg. to Nebraska); Hayden, Geol. & N. H. of Up. Missouri, Philad. 4to, 1862, p. 171 (Ft. Laramie); Coues, Pr. A. N. S. Phil. 1866, 55 (Fort Whipple, Ariz.); Lord, Nat. in Vancouver's Island, ii. 1860, p. (breeding near Ft. Colville, W. T.); Dall & Bannister, Trans. Chicago Acad. i. 1869, 286 (Sitka); Coop. Cal. Orn. i. 1811, 289, with 3 figs.

Baltimore, Ind., U.S., Nov. 4, 1871.

IX.—*Notes on the Birds of Novaja Zemlia and Waigats Island.*

By Th. von Heuglin.

Allow me to offer to the readers of 'The Ibis' a short account of the ornithological results of my voyage to Novaja Zemlia. Our steamer left Hammerfest on the 25th of July, 1871, and passed Nordkyn the next day, whence we made directly for the Matotschkin Shar (Matthew's Strait), where the 'Germania' anchored on the 6th of August. Our stay was prolonged to the 20th, as icebergs, blocking up the entrance of the Sea of Kara, obliged us to go back. We lay in Kostin Shar the 23rd and 24th of August, and availed ourselves of the opportunity to visit the lower part of the Nechwatowa river. We then proceeded to Waigats Island, whence, between the 1st and 7th of September, we made vain attempts to penetrate the Straits of Yugorsky and Kara; for both were blocked with drift-ice. The advanced state of the season determined the Captain to return, as he thought it impossible this year to reach the Obi, Yenisei, or Taimyr. Any further exploration of Novaja Zemlia also remained unaccomplished; so that I had only an opportunity of paying a rapid visit to the above-mentioned places of the double island, the west coast of Waigats, and the mouth of the Nikolskaja river, on the continent, near Yugorsky Strait.

Notwithstanding the very limited time I had to bestow upon ornithological observations and notes, the results do not seem to be so inconsiderable, as shown by the following list of the birds of Novaja Zemlia and Waigats.

Reference is made at the end of Mr. Gillett's paper in 'The Ibis' for 1870 (p. 309) to the ornithological notes on that group of islands, published by the Academician Von Baer. In the present account are included Pachtussow's reports ('Sapiski des hydrographischen Departements des Ministeriums,' i. pp. 216–220, *cf.* Spörer, Novaja Semlä, p. 100), containing some notices of birds, but mentioned under Russian and Samoyed names. Mr. Gillett gives twenty-eight species as observed here. The species not observed by myself I here mark with † before the number.

1. Falco gyrfalco.—*Falco buteo,* Spörer, N. Semlä, p. 98? *F. gyrfalco* (et *peregrinus*?).—Gillett, no. 1 (et 2?).

We observed, both in Matthew's Strait and also in Kostin Shar, two large Falcons which are certainly to be referred to the above-named species.

2. Surnia nyctea.—Gillett, no. 3.

Not common in Matthew's or Waigats Strait. I found three nests with two young birds covered with down in Seal's Bay, near the mouth of Matthew's Strait, in the Sea of Kara. The nests consisted of a shallow depression in the turf, without any lining. The food of the Snowy Owl, at least during the summer time, consists exclusively of species of *Myodes,* which are very numerous. The down of the young is plain brownish-grey. They are easy to tame, and their comical gestures and vivacity are amusing.

†3. Hirundo rustica.—Gillett, no. 5: Heugl. Geogr. Mittheil. 1871, p. 66.

Seen by Mr. Gillett and Capt. Ulve on the north-west coast of the North Island.

4. Anthus cervinus.—Von Middend. Sib. Reise, ii. 2. p. 165, t. xiv.

Not uncommon at Waigats, and on the Nikolskaja. In pairs on swampy meadow-lands. The moult of the adult takes place in the beginning of September. Throat and superciliary streak are of a bright rust-colour, the rest of the lower parts tawny (*leonino-fulva*).

5. Otocorys alpestris.

In pairs in Matthew's Strait, and Kostin Shar, on Waigats and the Nikolskaja. By the 8th of August the young were already fledged. The moult of the adult takes place at the end of that month. They are in habits very much like *Anthus pratensis,* and show themselves also sometimes in the rushes and high grass.

6. Plectrophanes nivalis.—Gillett, no. 4.

Everywhere abundant. We found newly fledged young at the beginning of August, at which time there were still birds unable to fly. The autumnal moult of the old ones takes place at the end of August. The southward migration begins in the middle of September; and then the Snow-Buntings are generally in closely packed flocks.

†7. Lagopus, sp.?—Spörer, N. Semlä, p. 98.

According to Pachtussow there are Ptarmigans on the Double Island. I believe I found in Matthew's Strait the remains of a species of *Lagopus*; and a Norwegian of our company, who knew these birds well, asserted that he had seen a "Ripa" in Dolphin Bay. It would, indeed, be remarkable if this genus were not here represented, although there are an extraordinary number of Arctic Foxes, which in the winter must be very destructive to these animals.

8. Charadrius apricarius.—Von Middend. *l. c.* p. 210.

Very common on the continent near Yugorsky Strait; more rare on Waigats.

9. Eudromias morinellus.—Gillett, no. 6.

Observed by Mr. Gillett in Matthew's Strait. We found small flocks near Yugorsky Strait. At the beginning of September the young had still some down on the back of their head; the adults change even the small feathers.

10. Ægialitis hiaticula.—Gillett, no. 7.

Everywhere common; they must breed late, as we found nestlings in the middle of August.

†11. Strepsilas collaris.—Spörer, N. Semlä, p. 98.

Occurs, according to Von Baer, on Novaja Semlia—information which gains probability, as Von Middendorff met with the Turnstone, on the Taimyr, as far as lat. 74° N.

12. Tringa maritima.—Gillett, no. 8.

Everywhere common, and generally in pairs. In autumn in smaller or larger flocks, and often mixed with *T. cinclus* and *T. minuta*. On the 8th of August I found nestlings still very small, and covered with down.

13. Tringa cinclus.

Very common in September on Waigats.

14. TRINGA MINUTA.

Breeds in Matthew's Strait in swampy meadows. Very common in September on Waigats. Many old birds in summer-plumage show a rusty hair-like elongation of the tibial plumage.

15. CALIDRIS ARENARIA.

Some in September on Waigats, among flocks of *Tringa cinclus.*

16. PHALAROPUS CINEREUS.

Already in autumn plumage, in the beginning of September, in parties of about six or more, on shallow freshwater pools on Waigats Island.

17. CYGNUS BEWICKI.

At the end of August we obtained an old bird, undoubtedly belonging to this species, on the Nechwatowa (Kostin Shar).

†18. CYGNUS MUSICUS.—Spörer, N. Semlä, p. 98.

Occurs, according to Von Baer, in Novaja Semlia. Two Swans, which may have belonged to this species, flew over our ship on the 11th of September, in a south-westerly direction, coming from Novaja Semlia.

19. ANSER SEGETUM.—Gillett, no. 24.

Very common; migrates about the middle of September.

20. BERNICLA BRENTA.—Gillett, no. 23.

Like the preceding species, in great flocks.

21. SOMATERIA MOLLISSIMA.—Gillett, no. 27.

Everywhere on rocky islands, but not so common as in Spitsbergen. On the 8th of August, we still found breeding females; we saw no old males.

22. SOMATERIA SPECTABILIS.—Gillett, no. 28.

Rarer than the preceding species, and seems to breed earlier in the year.

23. HARELDA GLACIALIS.—Gillett, no. 26.

Everywhere very common, and especially in shallow places under cliffs, on the sea, on freshwater pools, and at the mouths of rivers. Their stomachs contained chiefly univalve shells (*Natica*).

24. Œdemia fusca.

Paired and in flocks in Kostin Shar, and on Waigats, round cliffs and sand-banks.

25. Œdemia nigra.—Gillett, no. 25.

Observed by Mr. Gillett in Schirochika Bay; often seen by us in Kostin Shar and on Waigats: no specimens, however, were collected.

26. Anas penelope.

A female of this species was killed in September on a fresh-water lake on Waigats.

27. Mergus serrator.

Mixed with flocks of *Harelda glacialis* and *Œdemia nigra* on Waigats. A male shot in the beginning of September was changing the small plumage.

28. Colymbus septentrionalis.—Spörer, N. Semlä, p. 99.

Breeds in Matthew's Strait.

†29. Colymbus glacialis.—Gillett, no. 21.

†30. Colymbus arcticus.—Gillett, no. 22.

Neither of these two species were obtained by Mr. Gillett or ourselves; however, we saw them not unfrequently in pairs in the Straits of Yugorsky and Kara.

†31. Fratercula arctica, var. *glacialis*.—Gillett, no. 20.

In the northern part of Novaja Semlia. Not seen by myself.

32. Mergulus alle.—Gillett, no. 19.

As noticed by Mr. Gillett, more abundant in the north than in the south. I only observed Little Auks on the drift ice in the Gulf of Kara.

33. Cepphus mandti.—Gillett, no. 17.

Very numerous on all cliffs.

34. Uria bruennichi.—Gillett, no. 28.

As the preceding.

35. Sterna macrura.—Gillett, no. 9.

Along the coast in small flocks.

36. Larus eburneus.—Gillett, no. 10.
Somewhat rare in Matthew's Strait, and along the west coast.

37. Larus tridactylus.—Gillett, no. 11.
One of the commonest birds on the west coast; not in Matthew's Strait, nor on Waigats.

38. Larus glaucus.—Gillett, no. 12.
Pretty common southward as far as Yugorsky Strait.

39. Larus, sp.?
In Yugorsky Strait, and on Waigats. I several times saw large Gulls with a dark slate-grey mantle, undoubtedly *Larus fuscus.*

40. Lestris pomatorhina.—Gillett, no. 13.
By far the commonest species in Novaja Semlia and on Waigats. It feeds principally on Lemmings (*Myodes*), and is not unfrequently in flocks, especially on the ice-fields.

41. Lestris longicaudata.—Gillett, no. 15.
Numerous on Novaja Semlia, generally in pairs.

42. Lestris parasitus.—Gillett, no. 14.
Far rarer than the preceding.

43. Procellaria glacialis.—Gillett, no. 16.
Not seen on the continent, although met with everywhere on the high-sea between Novaja Semlia and the Norwegian coast.

Here ends my list of the birds of the district we observed. Besides the species named, some others, of which we could not obtain specimens, were seen; thus, I believe, I saw on Waigats a *Linaria*, several Sandpipers, *Totanus fuscus*, *T. calidris*, and possibly *T. ochropus**, as well as *Squatarola*, and several Ducks and Geese.

Tromsö, on board the 'Germania,' 20th Sept. 1871.

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* *Totanus ochropus* has not a high northern range. The species seen by our contributor is more likely to have been *T. glareola.*—Ed.

X.—*On Recent Collections of Birds from the Fantee Country, in Western Africa.* By R. B. Sharpe, F.L.S. &c., Librarian to the Zoological Society of London.

It is now more than a year since I last presented to the readers of 'The Ibis' any record of the collections which I have received from Fantee. My indefatigable correspondent, Governor Ussher, however, has taken the greatest pains to procure for me specimens from this locality, and I am indebted to him for some beautiful series of bird-skins. But as we have in preparation a joint paper on the ornithology of the Gold Coast, which will embody Mr. Ussher's notes on the habits of the birds of Fantee, as observed by him during his long residence in Western Africa, in addition to my own recent scientific investigations, I confine myself in the present paper to a simple enumeration of such species as are not included in my former lists*. I must not omit to mention my obligations to Captain Haynes, who generously placed at my disposal a very interesting collection of birds formed by himself at Accra, and enriched my cabinet by presenting me with some new and rare species.

The number of species now recorded by me from Fantee is 271, being exactly 120 more than those collected by Pel, and recorded by Dr. Hartlaub (J. f. O. 1855, p. 360). There are, however, in his list several birds which I have not yet seen; and there is no doubt that our knowledge of the avifauna of this part of Africa will be greatly increased by future observers.

As before, a dagger (†) is appended to all the names of such species as I believe to be hitherto unrecorded from Fantee, and the nomenclature employed is chiefly that of my 'Catalogue.' Where this is not referred to, allusion is made to Dr. Hartlaub's well-known work on the birds of Western Africa, or to Mr. G. R. Gray's 'Hand-list.'

†205. Caprimulgus fossii, Verr.; Finsch & Hartl., Vög. Ost-Afr. p. 123, pl. 1; Sharpe, Cat. Afr. B. p. 2.

Mr. Ussher has sent two specimens of this Goatsucker, which he obtained in the vicinity of Cape Coast.

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* *Vide* Ibis, 1869, pp. 186, 381; 1870, pp. 52, 470.

206. Cypselus parvus, Licht.; Sharpe, Cat. Afr. B. p. 2. *Cypselus ambrosiacus*, Gordon, Contr. Orn. 1849, p. 5.

A series sent by Mr. Ussher from Cape Coast, several being from Connor's Hill. Captain Haynes's Accra collection also contained specimens of this species.

207. Buceros elatus, Temm.; Hartl., J. f. O. 1855, p. 361; *Id.*, Orn. Westafr. p. 161.

Three specimens from Denkera, whence they were brought by Mr. Ussher's collector.

208. Buceros atratus, Temm.; Hartl., J. f. O. 1855, p. 361; Sharpe, Cat. Afr. B. p. 8.

From Denkera.

209. Buceros cylindricus, Temm.; Hartl., J. f. O. 1855, p. 361; *Id.*, Orn. Westafr. p. 162.

Mr. Ussher sent one specimen. The original examples were obtained by Pel from Ashantee.

210. Buceros fistulator, Cass.; Hartl., J. f. O. 1855, p. 361; Sharpe, Cat. Afr. B. p. 8.

Of this Hornbill Mr. Ussher has sent me one specimen, which is considerably smaller than the one now in my collection, obtained by Mr. Hamilton in Angola (*Cf.* Sharpe, P. Z. S. 1871, p. 134).

211. Irrisor castaneiceps, Sharpe, Ibis, 1871, p. 414.

One specimen, the type as described (*l. c.*), sent me by Mr. Ussher, who obtained it from Denkera.

212. Irrisor bollei, Hartl., J. f. O. 1858, p. 445, et 1861, p. 108; Sharpe, Cat. Afr. B. p. 10.

Mr. Ussher has, during the last year, procured three or four specimens of this bird, and both old and young are exhibited in my collection. The latter is distinguished from the adult chiefly by its shorter bill and duller plumage, and also by having the cream-colour of the head varied by black feathers.

†213. Cuculus canorus, L.; Hartl., Orn. Westafr. p. 266; Sharpe, Cat. Afr. B. p. 12.

Though not absolutely new to the avifauna of Western Africa, as Weiss obtained a specimen in St. Thomas, the Common

Cuckoo is here recorded from Fantee for the first time. It was obtained on Connor's Hill, Cape Coast, on the 2nd of November 1870.

†214. COCCYSTES SERRATUS (Sparrm.); Hartl., Orn. Westafr. p. 266; Sharpe, Cat. Afr. B. p. 13.

This is only the second time that this bird has occurred in Western Africa, Du Chaillu having obtained an example at Cape Lopez; Fantee is now added as a hitherto unknown habitat. The specimen in question was obtained by Mr. Ussher's collector in Denkera; and on comparing it with South-African examples of the same age in my collection, I can detect no points of difference. The genus *Coccystes*, as represented by this rather aberrant member, comes near to *Eudynamis*, especially resembling the last-named genus in some of the younger stages.

215. CENTROPUS MONACHUS, Rüpp.; Hartl., Orn. Westafr. p. 187.

Sent from Fantee by Mr. Ussher, and obtained at Accra by Captain Haynes. Riis shot this species in Agapim.

†216. CAMPETHERA GABONENSIS (Verr.); Sharpe, Cat. Afr. B. p. 17.

I have had a specimen of this bird in my collection for some time, received in one of Mr. Higgins's early consignments.

†217. CAMPETHERA PUNCTATA (Cuv.); Sharpe, Cat. Afr. B. p. 17.

Mr. Ussher sent one specimen of this Woodpecker, which is quite new to the locality.

†218. CAMPETHERA CAROLI (Malh.); Sharpe, Cat. Afr. B. p. 17.

Two or three specimens from Denkera, and one from the immediate vicinity of Cape-Coast Castle.

†219. ALETHE CASTANONOTA, Sharpe, Cat. Afr. B. p. 20.

Originally described by me from a specimen sent home by Mr. Ussher. Captain Haynes also met with it near Accra.

†220. CRINIGER SYNDACTYLUS (Sw.); Finsch, J. f. O. 1867, p. 27.

Of this species, which I have in my collection from Gaboon, Governor Ussher sends a single example.

†221. Criniger canicapillus, Hartl.; Finsch, J. f. O. 1867, p. 31.
Two specimens.

†222. Andropadus virens, Cass.; Sharpe, Cat. Afr. B. p. 23.
One specimen received from Mr. Ussher.

†223. Ixonotus guttatus, Verr.; Sharpe, Cat. Afr. B. p. 23.
Two specimens from Kazarako, obtained by Mr. Ussher's collector.

224. Crateropus haynesi, Sharpe, Ibis, 1871, p. 415. *Crateropus atripennis*, Hartl., J. f. O. 1855, p. 360 (*nec Sw.*).
Captain Haynes obtained the typical example of this species at Accra.

225. Hypergerus atriceps (Less.); Sharpe, Cat. Afr. B. p. 24. *Crateropus orioloides*, Hartl., J. f. O. 1855, p. 360.
Three specimens sent by Captain Haynes from Accra.

†226. Pratincola rubetra (L.); Sharpe, Cat. Afr. B. p. 27.
Mr. Ussher obtained one specimen of our common Whinchat at Accra. I have it in my collection from the Gambia; but it has never been recorded from Fantee.

227. Stiphrornis badiceps (Fras.); Hartl., J. f. O. 1855. p. 360; Sharpe, Cat. Afr. B. p. 32.
One specimen. Also obtained by Pel.

†228. Dryodromas caniceps (Cass.); Finsch & Hartl., Vög. Ost-Afr. p. 240.
One specimen of this rare bird, previously only known from Gaboon.

†229. Sylvietta virens, Cass., Proc. Acad. N. S. Philad. 1859, p. 39.
One specimen of a very interesting form, as yet only known from Gaboon.

†230. Nectarinia tephrolæma, Jard.; Sharpe, Cat. Afr. B. p. 41.
One specimen: new to Fantee.

†231. NECTARINIA GABONICA, Hartl.; Sharpe, Cat. Afr. B. p. 41.

Of this curious little grey Sunbird Mr. Ussher sends a single specimen from Fantee. I had already noticed it in his Volta collection, but had been unable to determine it until M. Jules Verreaux recognized it as *N. gabonica*, of which the type is in his own collection in Paris. I cannot help having an idea that this bird will prove to be the female of some other species of Sunbird, though M. Verreaux entertains the contrary belief.

†232. PHOLIDORNIS RUSHIÆ (Cass.); Sharpe, Cat. Afr. B. p. 41.

Of this extraordinary little bird Mr. Ussher's collector procured two specimens in Denkera, one of which I have retained in my own collection, and have given the other to M. Jules Verreaux, as it was one of the few Sunbirds not included in his admirable series of these birds.

†233. BUTALIS GRISOLA (L.); Sharpe, Cat. Afr. B. p. 42.

Mr. Ussher's last collection contains several of our European migrants which were not previously known to occur in Fantee. The Common Flycatcher is one of these; it was shot by Governor Ussher himself on Connor's Hill.

†234. SMITHORNIS RUFOLATERALIS, Gray; Sharpe, Cat. Afr. B. p. 43.

I am pleased to see this species, of which only a single specimen was previously known, and the precise locality of which had never been recorded. I have now three specimens in my collection, received from Mr. Ussher.

†235. ARTOMYIAS USSHERI, Sharpe, Ibis, 1871, p. 416.

Dr. Hartlaub thinks this is the young of *A. fuliginosa*, and has written to me to that effect; but I doubt this conclusion for the reasons already expressed (*l. c.*).

†236. PSALIDOPROCNE NITENS, Cass.; Sharpe, P. Z. S. 1870, p. 291.

When I wrote my paper on African Swallows, this little species was only known from Gaboon; but since that time Mr. Crossley has discovered it in Cameroons; and now Mr. Ussher sends it from Fantee, where he obtained it at Fort Victoria.

237. Hirundo rustica, L.; Hartl., J. f. O. 1855, p. 360; Sharpe, Cat. Afr. B. p. 45.

Two specimens; shot by Mr. Ussher on Connor's Hill, Cape Coast.

238. Hirundo senegalensis, L.; Gordon, Contr. Orn. 1849, p. 4; Sharpe, P. Z. S. 1870, p. 316.

Mr. Ussher obtained several specimens of this fine Swallow near Accra.

†239. Laniarius nigrithorax, Sharpe, Ibis, 1871, p. 417.

This fine species, easily recognizable by its black throat and chest, was discovered by Captain Haynes at Accra.

240. Laniarius hypopyrrhus (Verr.); Sharpe, Cat. Afr. B. p. 49.

A beautiful species, of which one specimen has been sent by Mr. Ussher.

241. Sigmodus caniceps, Temm.; Hartl., J. f. O. 1855, p. 360; Sharpe, Cat. Afr. B. p. 50.

A series of specimens from Denkera; also in my collection from Sierra Leone.

†242. Corvinella corvina (Shaw); Sharpe, Cat. Afr. B. p. 51.

One specimen of this bird, which is quite new to the locality.

243. Fraseria ocreata (Strickl.); Sharpe, Cat. Afr. B. p. 52; *Tephrodornis ocreatus*, Hartl., J. f. O. 1855, p. 360.

From Denkera.

†244. Campephaga azurea, Cass.; Sharpe, Cat. Afr. B. p. 52.

Two specimens of this anomalous species from Denkera

†245. Picathartes gymnocephalus, Temm.; Sharpe, Cat. Afr. B. p. 57.

Of this extremely rare bird, hitherto only known from Sierra Leone, Mr. Ussher has obtained three specimens from his collector in Denkera.

246. Hyphantornis vitellina (Licht.); Sharpe, Cat. Afr. B. p. 58.

One specimen.

247. HYPHANTORNIS FLAVIGULA, Hartl., R. Z. 1845, p. 406.

Of this bird Mr. Ussher collected one specimen on the Volta, though I did not identify it at the time. Dr. Hartlaub states that the Bremen Museum has a specimen from Accra; and Riis procured it in Aguapim.

†248. HYPHANTORNIS CINCTA, Cass.; Sharpe, Cat. Afr. B. p. 59.

One specimen sent by Mr. Ussher, and one from Captain Haynes from Accra. This species is new to Fantee.

249. HYPHANTORNIS BRACHYPTERA (Sw.); Sharpe, Cat. Afr. B. p. 59.

Procured on the Volta by Mr. Ussher. Also obtained by Sintenis, one of whose specimens is now in my collection.

†250. MALIMBUS NIGERRIMUS (V.); Sharpe, Cat. Afr. B. p. 60.

Two specimens from Denkera.

251. FOUDIA ERYTHROPS, Hartl.; Sharpe, Cat. Afr. B. p. 62.

Procured by Mr. Ussher during the Volta Expedition. Also sent from Aguapim by Riis.

†252. LAGONOSTICTA MINIMA (V.); Sharpe, Cat. Afr. B. p. 66.

Two examples from Fantee are in my collection, one of them being from the Volta.

253. PYRENESTES CAPITALBUS, Temm.; Hartl., J. f. O. 1855, p. 361; Sharpe, Cat. Afr. B. p. 68.

From Denkera, sent by Mr. Ussher; also obtained at Accra by Captain Haynes.

254. GYPOHIERAX ANGOLENSIS (Gm.); Hartl., Orn. Westafr. p. 1.

One young specimen.

†255. ELANUS CÆRULEUS, Desf. *E. melanopterus* (Daud.); Hartl., Orn. Westafr. p. 11.

From Accra.

†256. SCOTOPELIA USSHERI, Sharpe, Ibis, 1871, p. 101, pl. xii.

From Denkera.

†257. Scops senegalensis, Sw.; Hartl., Orn. Westafr. p. 19.

One specimen of this little Owl, not before recorded from Fantee.

258. Turtur senegalensis (L.); Hartl., Orn. Westafr. p. 195.

Two specimens from Accra.

†259. Numida plumifera, Cass.; Elliot, Mon. Phasianidæ, part 2.

A fine specimen from Accra in Governor Ussher's last collection.

†260. Francolinus bicalcaratus (L.); Hartl., Orn. Westafr. p. 201.

This fine Francolin was procured by Governor Ussher at Accra. It is new to Fantee.

†261. Turnix lepurana (Sm.); Layard, B. of S. Afr. p. 276.

Mr. Ussher procured two examples of this little Hemipode near Accra. On comparison with a specimen from South Africa I cannot see any difference at all.

†262. Eupodotis melanogastra (Rupp.); Hartl., Orn. Westafr. p. 207.

One specimen, shot by Mr. Ussher near Accra.

†263. Lobivanellus senegalus (L.); Hartl., Orn. Westafr. p. 213.

Mr. Ussher sends one specimen, with the following note attached.

"Striped-throated Lapwing. Plains of Accra, June 9th 1871: probably migratory; appear about June, and leave in September or October; iris yellow, pupil black, with a narrow violet circle; wattles round the eye dull red, those below bright lemon-yellow; spurs on wing dull red; legs lemon-yellow; bill yellowish with black tip."

†264. Ægialitis intermedia, Ménétr. *Æ. philippina* (Lath.); Gray, Hand-l. of B. iii. p. 15.

One specimen from Accra, shot by Mr. Ussher himself. The example, unfortunately, is not quite adult, but appears to me to belong to the smaller and apparently distinct form of Ringed Plover.

†265. Nycticorax griseus (L.). *N. europæus,* Hartl., Orn. Westafr. p. 225.

One specimen of the European Night-Heron, which is a new bird to Fantee.

266. Numenius phæopus (L.); Hartl., Orn. Westafr. p. 232.

Shot by Mr. Ussher on the Nagua river. Sent by Pel from Ashantee.

267. Numenius arquatus (L.); Hartl., Orn. Westafr. p. 232.

Also from the Nagua river.

268. Totanus calidris, Bechst.; Hartl., Orn. Westafr. p. 234.

One specimen from the Nagua river. Also procured by Pel in Ashantee.

†269. Procellaria pelagica, L.; Gray, Hand-l. of B. iii. p. 103.

One specimen of the Stormy Petrel, which would appear to be new to West Africa altogether.

†270. Procellaria oceanica, Kuhl; Gray, Hand-l. of B. iii. p. 104. *Thalassidroma wilsoni,* Bp.; Hartl., Orn. Westafr. p. 251.

Two specimens received from Mr. Ussher.

271. Sterna minuta, L.; Hartl., Orn. Westaf. p. 256.

Mr. Howard Saunders kindly identified for me this species, a specimen of which was shot by Mr. Ussher on the Nagua river. Weiss procured it on the Gold Coast.

XI.—*Letters, Announcements, &c.*

The following letters, addressed "To the Editors of 'The Ibis,'" have been received:—

Sir.—My time has been so taken up by my professional duties, that I have been unable to grasp the opportunities of collecting specimens and observing that have presented themselves to me of late. However, I send you the following scattered notes in the hope that they may prove of some slight interest, more especially those relating to the little-observed *Procellariidæ*. I may remark that the last two years of my life have been passed on the South Atlantic Ocean, and that my soul is weary of Albatroses and Petrels, and I hope never to see another in his native haunts.

We visited the island of Tristan d'Acunha in September 1868. I was much interested in this magnificent mountain, the nursery of the wandering Albatros, its snow-covered summit jutting into the clouds, the sides variegated with green slopes and jagged dun-coloured rocks, and its black beach fringed with the restless foam of the Atlantic, whilst vast masses of sea-wrack wave their slimy arms in the swell round the coast. The Albatroses, which nest on the highest ledges of the cliffs, present the appearance of mere specks, so great is the altitude. The inhabitants, who had not much ornithological information to impart, stated most positively that the Albatroses remained at the island throughout the year, laying their eggs in January, and the young flying in November, and that consequently there is almost always on the island a supply of young birds, which are consumed in great quantities for food, and appear to be considered rather a delicacy. The slopes are covered with very fine sheep; but the inhabitants are averse to eating them, as they fetch a good price from passing ships; and in Tristan d'Acunha money goes as far as it does anywhere. The solitary wingless land-bird of the island is fast becoming extinct, from the depredations of the wild cats. I obtained here the eggs of *Diomedea exulans*, *D. melanophrys*, and *Procellaria gigantea*, besides those of several other species, which I was unable to identify.

In my communication to 'The Ibis' (N.S. vol. iv. no. 15), I stated my doubts as to the existence of *Thalassidroma leucogastra*. After two years' further observation in these seas, I do not feel justified in altering my views. *T. melanogastra* may be called the Sparrow of the South Atlantic, from its numbers and tameness; but on only one occasion have I seen a bird that might have been *T. leucogastra*, and it was on this visit to Tristan d'Acunha.

Mr. Layard, who takes an opposite view, wished me to mention this occurrence; but so doubtful am I still about it, that, were it not for his request, I should not have done so. If it exists at all it must be extremely rare in these seas.

From several passages between the tropics and the south, I made the following notes of the northern range of the species named in the accompanying Table:

Species.	African Coast of South Atlantic.	American Coast of South Atlantic.	Eastern Coast of South Africa.
T. melanogastra ..	27° S.	21° S.	26° to 25° S.
P. gigantea	27° to 26° S.	27° to 26° S.	27° S.
P. capensis	27° to 25° S.	24° S.	26° to 25° S.
D. exulans	ditto	ditto	27° S.
D. melanophrys ..	ditto	ditto	26° S.

With the exception of *D. exulans,* these birds are as plentiful on the American as on the African side; I attribute the comparative absence of that species to the prevailing westerly winds, against which they would have to travel from Tristan d'Acunha. All the Albatroses, and most of the Petrels, follow ships; consequently vessels going to the north would observe them in higher latitudes than vessels coming from the equator. For instance, on leaving Rio de Janeiro in October last there were at least thirty Black-bellied Petrels round the ship in latitude 5° S., longitude 30° W.; but I feel sure that they had been enticed beyond their true boundary by the ship; and again for several days after our arrival either in Simon's Bay or Monte Video, Albatroses and Petrels, scarcely ever seen on other occasions, would sit or fly round us, wondering where they had arrived, and, after due cogitation, would wing away to sea.

I am ashamed to say that during my stay in South America my love of shooting utterly sapped my ardour as a collector, and I gathered very little information. Still a few notes on the general ornithological features of the country bordering on the River Plate may not be uninteresting. I made a prolonged stay at a large estate on the St. Lucia river (a tributary of the Rio de la Plata), sometimes dwelling in the owner's house, and at others pitching my tent far away in the wild bush on the river-banks. In all my wanderings I never stayed in a locality so full of game combined with such a delicious climate; cool, bracing, and sunny, with generally a slight frost during the night, it offers every inducement to the naturalist or sportsman.

Capybaras (called by the natives Capinchcs) abounded, and combined with the foxes to make the nights hideous with their yells, while their paths threaded the wooded banks in all directions. Otters swam in the river; and a little rodent, of the shape and size of a Guinea-pig, but coloured like a rat, rushed in hundreds into the clumps of rushes on the approach of the human footstep.

There are two species of birds called Partridges by the natives: the one, small, never in coveys but in myriads, reminded me in their manners of the Quail of the Old World, being literally flushed at every yard; the other (*Rhynchotus rufescens*, Temm.), as large as the English Pheasant, a magnificent fellow, flaps heavily up from the long dead grass in the vicinity of swamps, and, if not bagged, invariably seeks safety in impenetrable morass. If, however, they can be headed away from the marsh and are quickly followed up, they will not rise more than two or three times; and in this way I have sometimes caught them by hand.

Spur-winged Lapwings (*Vanellus cayennensis*, Gm.), always in pairs, sit on the edge of the damp spots or pools, and, rising as we approach, shriek Terek-Terek (their native name) as they circle round our heads. They are horribly annoying, as they follow and alight in front and about one; and after as it were chuckling their name over, they spring up again yelling more dismally than before. My companion always shot them—and when remonstrated with, said he liked them in pies; however, it certainly was a relief when they fell and the clamour ceased; and I am bound to confess that he did the eating part conscientiously.

Several varieties of wild Duck, Snipe, and Waders abounded in the marshes and streams, besides Coots and Water-hens. Two species of Grebe were also very common on the St. Lucia river.

Little Burrowing Owlets sat in many of the depressions of the ground, generally flying about a hundred yards and perching on a thistle when frightened.

The Ostrich, *Rhea americana*, and Deer were very plentiful on the plains, and afford capital sport either stalking or riding. The former are not good to eat; but their stomachs are sought after as a medicine, and their feathers also possess a small commercial value.

My friend, the proprietor of this estate, a very enlightened Spanish gentleman resident in Monte Video, asked me to shoot him a dozen, as he wished to send the stomachs to some friends in Europe. I obtained my first four very easily by following the advice of a young *gaucho* who was with me. In compliance with his instructions, on observing a troop we went carelessly towards them till they appeared startled, when we threw ourselves on the ground and flung our arms and legs about. The birds cautiously approached with outstretched necks to see what we were. When the foremost one (the male, known by his blacker neck) was within about sixty yards, I shot him with my rifle; and seizing my gun from the boy, I rushed at the remainder of the flock, the hens. They charged undauntedly up to me with outstretched and drooping wings, and I secured some more; the remainder turned and ran off at a tremendous pace; but I was lucky enough to stop another with a bullet. My boy assured me that, had I shot a hen first, the others would have made off at once. I always adopted this plan afterwards, with varying success.

I do not know what truth there may be in this idea about their stomachs; but the boers at the Cape of Good Hope dry and grind up the stomach of the Knorhaan (*Eupidotis afra*) for the same purpose.

I was three months in the River Plate, but during that period I never saw any bird of the Cormorant tribe; Gulls and Terns, however, were very plentiful; and just before our departure in September several pairs of Black-necked Swans were observed from the ship.

Between Monte Video and the northern extreme of the South-American continent, at a distance varying from 300 to 100 miles, we were frequently visited by *Scolopacidæ*, *Hirundinidæ*, and *Passerinæ*, and this in fine weather.

Yours, &c.,
ROWLAND M. SPERLING.

SIR,—Some months since, when examining the British-killed *Larus atricilla* in the Montagu collection at the British Museum, Mr. G. R. Gray called my attention to a bird obtained in the Thames and also ascribed to that species. On subsequently comparing this individual with a series of various allied species in my collection, I identified it, with the complete concurrence of Mr. Gray, as an immature example of *Larus melanocephalus*, a Gull which, from its rich black hood and bright red bill, cannot fail to be familiar to every one who has traversed the Mediterranean in spring and summer. Mr. Gray informed me that he obtained it on the 23rd March, 1866, from Mr. H. Whitely, curator of the Royal Artillery Museum at Woolwich, who, in reply to my inquiries wrote to me as follows:—

"I find, upon looking back at my books, that I sold Mr. G. Gray a Gull on the 23rd of March, 1866, which, at the time, he took to be a hybrid between the Common Gull and the Kittiwake. This bird was shot in the month of January 1866, near Barking Creek, by a waterman, and brought to me for sale with other birds: I bought this bird, not knowing what species it was, and at the date mentioned took it to Mr. Gray."

The specimen in question is a bird of the first year, in precisely the same state of plumage as a Maltese specimen shot early in February. In the adult plumage this species is distinguishable at a glance from *L. ridibundus*; and even immature birds of the former show a stronger bill and somewhat larger tarsi; still the best distinction exists in the first primary. In young *L. melanocephalus* that portion of the inner web which lies *next* to the shaft is *smoke-coloured* on both upper and under sides, whereas in *L. ridibundus* it is *white*, as is also the shaft, This holds good until *L. melanocephalus* has lost all colour on the inner web of the first primary, when the dark edging of the same feather in *L. ridibundus* forms a still more marked distinction.

A further peculiarity of this species is, that although it assumes the black head in its second spring, when it commences to breed, yet it does not acquire the full white primaries until the third spring. Figures and descriptions of this bird are to be found in Gould's 'Birds of Europe,' vol. v., and in Bree's 'Birds of Europe not observed in the British Isles,' vol. iv. p. 104.

I am yours,
HOWARD SAUNDERS.

London, August 1871.

SIR,—In 'The Ibis' for 1870, p. 153, Dr. Salvadori asserted that *Francolinus vulgaris* still existed in Sicily; and having in reply, *op. cit.* p. 299, briefly stated my reasons for believing in its extinction in that island, I was content to let the matter rest until it should be settled by Professor Doderlein, who was then on the point of visiting Terranova for that express purpose. The result of his expedition is given in the 3rd part of his 'Avifauna del Modenese e della Sicilia,' pp. 159, 160 (Palermo, 1871), from which I translate the following:—

"I confess that on this occasion I have not had the good fortune to kill a Francolin myself; but from the information obtained I can state the following:—1st. That, up to the end of 1865, individuals were annually obtained near Suero and Butera, where the herbage is aromatic, and were sent for the Christmas festivities to the Prince of Monteleone-Pignatelli, proprietor of that fertile plain. 2nd. That later on, the species being now represented by extremely few individuals, single specimens were occasionally obtained on the estate of Falconara, near Terranova, recently acquired by the Baron Bordonaro, where, in the autumn of 1869, *one, perhaps the last** individual, was procured, and *eaten at a dinner* at Terranova. This fact, attested by the Prefect and many sportsmen of the country, was announced to me in the course of the past year by Professor Tacchini, who was down there to take observations for the solar eclipse of 1870. 3rd. That, notwithstanding the extreme rarity of this bird in the present day, the captain of the rural guard of Terranova pro-

[* The italics are mine.—H. S.]

mised, in consideration of the reward offered, to forward me at Palermo in the course of the present year one or two individuals of the much desired species. The result of all this is, that although very rare, the Francolin still existed up to the autumn of 1869 in some parts of the island; but if not already extinct, it will inevitably be so in a very short time."

I confess my inability to agree to my sanguine friend's deduction as to the existence of even "the last of the Francolins" in 1869. If he had seen a feather of the individual in question which he could pronounce to be undoubtedly that of a Francolin, I should be reduced to silence; but I am not satisfied with the hearsay evidence even of prefects and sportsmen. Lord Lilford, in his able article (Ibis, 1862, pp. 352–356), enumerates no less than six other species to which he has heard the term "Francolino" applied; of these (notably *Otis tetrax* and *Œdicnemus crepitans*), several are found in Sicily; and I can add *Phasianus colchicus*, which is now tolerably plentiful in some parts of that island. It must be borne in mind that for some time prior to his visit, Professor Doderlein had enlisted in his behalf the services of many well-known inhabitants of the district, one of them a practical ornithologist at Girgenti, and that a very large reward had been offered; yet, in spite of all this, the solitary specimen obtained is forthwith devoured, not at a remote farm-house by an ignorant peasant, but in the principal town, at a banquet at which the attesting Prefect and sportsmen probably assisted. I think it would be as well not to insist upon what, if true, is one of the most barbarous acts of the latter half of the present century.

I am yours, &c.
HOWARD SAUNDERS.

London, December 14, 1871.

Futtehgurh, N. W. P.,
June 24, 1871.

SIR,—As very little seems to be known regarding the nidification of the Whiskered Tern, *Sterna leucopareia* (*Hydrochelidon indica* of Jerdon) the following notes may not be without interest to some of the readers of 'The Ibis.'

When stationed at Fyzabad, Oudh, in 1867, I went out one July morning with my friend Mr. Naher, of the Oudh Commission, on a naturalizing excursion; and we had hardly gone two miles beyond the town when our attention was attracted by the outcry of a vast assembly of these handsome Terns, that were flying over a gheel or swamp, about a mile in circumference, and within a stone's throw of the main road and of a village which overlooked the piece of water.

My friend, who had a pair of glasses in his hand, called out that they were building nests on the swamp, which was one mass of tangled weeds and aquatic creepers, &c. I was, of course, somewhat incredulous of their building floating nests, as Jerdon mentions that they lay on the "churs" of the Ganges, *i. e.* sand-banks. We were, however, soon assured that they were all actively engaged in carrying long wire-like weeds (some of them 2 feet long) from different parts of the gheel, and making huge floating nests on the surface of the water.

On the 7th July we again visited the place, taking a small canoe with us, which was pushed through the rushes and weeds with the greatest difficulty; and we were soon rewarded with as many eggs as we could carry home.

Each nest contained one, two, or three eggs,—though possibly four may be the proper number, had we allowed the birds sufficient time to lay the full complement.

The circumference of some of the nests I measured ranged between 3½ and 4 feet, and they were about 4 inches thick. They were composed entirely of aquatic plants, and so interwoven with the growing creepers that it was quite impossible to remove them without cutting at the foundation of the structure. I managed to bring away a few, which, together with specimens of the birds and their eggs, I deposited in the Fyzabad Museum before leaving for England. The eggs, as may be expected, are subject to the same endless varieties as those of the *S. hirundo* and *S. arctica*, but differ in being smaller, less pointed, and in the general ground-colour being much lighter.

On comparing twelve that I still possess with an equal number of the eggs of the other two species, I find that the average length of the former (*S. leucopareia*) is 1·4 inch, about 0·2 less than those of *S. hirundo* and *S. arctica*. One egg is somewhat similar to one figured on Hewitson's plate; but all twelve are from 0·2 to 0·3 less in length. Two that I have resemble miniature eggs of the Black Guillemot, and are perfect beauties.

In 1868 I again visited the same gheel; but, owing to a scanty fall of rain, the swamp was next to dry, and not a Tern near it. I am glad, however, to find from a letter just read from a correspondent at Fyzabad, that the birds have this season returned to their old breeding-haunts, but have not yet commenced to build.

I remain, &c.,
ANDREW ANDERSON.

2 August, 1871.

SIR,—The supposed specimen of *Athene noctua* from Poona, in the Norwich Museum, referred to by Dr. Jerdon (Ibis, 1871, p. 349), proves, on closer examination, to be only an example of *Athene brama*.

I may also remark, with reference to Dr. Sclater's allusion (at p. 358 of the same volume) to the Short-eared Owl of the Sandwich Islands, that in 1869 I examined specimens from those islands in the museum of the Jardin des Plantes, which appeared to me to be identical with the ordinary widely spread *Otus brachyotus*.

I am yours, &c.
J. H. GURNEY.

Colonial Museum, Wellington, N.Z.,
August 5, 1871.

SIR,—I send you some synonyms of two of Forster's Petrels which I think I have made out, and which have for a long time "wanted a situation."

PROCELLARIA TRISTIS, Forst., = *P. grisea*, L. (not of Forst., which is *P. cinerea*, Gmel., nor of Kuhl, which is *P. atlantica*, Gould), = *Puffinus amaurosoma*, Coues.

This is the "Mutton-bird" of the south part of New Zealand: the under wing-coverts are white; the bill is bluish white passing into black on the culmen and gonys; feet and legs bluish white; in the young bird the bill, legs, and feet are brownish black. It is abundant on Stewart's Island, and probably also on the Auckland Islands.

PROCELLARIA GAVIA, Forst.,=*Puffinus opisthomelas,* Coues.

The locality, Queen Charlotte's Sound, and the habit, "*gregaria,*" given by Forster are enough to show that his bird was not an *Æstrelata,* which never frequents the Sound, and never flies in flocks. The only gregarious Petrels belong to the genera *Halodroma, Puffinus, Prion,* and *Daption.* The first and last are of course out of the question; and the length of the tail of *gavia* (2·5″) puts *Prion* out of the question also. The colour also ("cærulescenti-nigra") is much nearer to that of *P. opisthomelas* than to any *Prion* or to *P. cookii. P. opisthomelas* varies considerably in size, especially in the length of the tail; but the following may be taken as an average of New-Zealand specimens.

Expanse 26″, length 12¼ to 13¼; bill along culmen 1½, to gape 2; tail 3·5 to 2·75. These measurements are almost identical with those given by Forster*. I have never seen any species of *Æstrelata* in Queen Charlotte's Sound; but *Puffinus opisthomelas* is common there.

Yours truly,
F. W. HUTTON.

Geological Survey Office,
Calcutta, August 25, 1871.

SIR,—*Prinia adamsi,* Jerdon, 'Birds of India,' ii. p. 170, has remained an obscure species ever since its description, and is included in the list of doubtful forms in Jerdon's Appendix. Rather more than two years ago Mr. Fairbank collected specimens at Wádále (in the Upper Godávari valley, near Ahmadnagur, and about 150 miles east of Bombay) which he looked upon as belonging to this species; and, with his usual liberality, he left four specimens and the nest in my hands for more complete description. I had hoped to include an account of them with some other Indian ornithological notes; but time has not sufficed for writing out the latter; and as I find *P. adamsi* again referred to by Mr. Hume (in 'The Ibis' for 1870, p. 145), I think it will be useful to give a fuller description of it than has hitherto appeared.

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* Forster gives the tibiæ of *P. gavia* 1¾ inch; this, I think, must be a mistake for tarsi; the tibia of *P. opisthomelas* is 2¼ inch, the tarsus 1⅝ inch.

On showing the bird and its nest to Mr. Blyth, that gentleman remarked that the structure of the latter proved the builder to be a *Drymœca,* and not a *Prinia,* the structure being of grass woven together, and not of leaves, and being of a different form from the nest of a *Prinia.* The following is a description of the bird.

Drymœca adamsi (Jerdon). The whole of the upper parts are greyish brown in specimens shot in the autumn, rufescent brown in those killed in the spring, the latter being perhaps birds of the year; head obsoletely striated. The quills are of the same colour as the back, the inner margins isabelline. Tail rather lighter in colour, the feathers, ten in number, being still paler beneath; central rectrices not spotted at the end, but subobsoletely and closely marked with transverse bands above; all the others have a pale tip and a dusky spot of variable size and hue close to it. Underparts silky white, with a slight isabelline tinge in autumn specimens, rufescent in those killed in the spring. Bill dusky; legs pale brown; iris reddish buff. Measurements, taken from four specimens (three males, and one with the sex not determined):—Wing 1·88 to 1·95; tail 2·05 to 2·25; tarsus 0·77 to 0·82; bill from forehead 0·38, from gape 0·55 to 0·58. The first primary 0·45 in. shorter than the second, which is barely 0·2 in. less than the third; the fifth is the longest; the sixth equals the fourth, and the eighth the third.

I cannot say whether the two specimens shot in the spring are young birds, or whether the plumage changes with the season. They are decidedly more rufescent above and below than the birds (undoubted adults) shot in the autumn.

The nest is of grass, shaped somewhat like a soda-water bottle, with an entrance at the side near the top. It is suspended from the leaves of the Leájri (*Holcus spica*), a cereal largely grown in the Deccan, and, in fact, throughout a large portion of

India. The bird breeds in October, and lays four eggs, measuring 0·6 inch in length, greenish blue in colour, with dark red-brown blotches and irregular twisted lines at the larger end. The birds are found throughout the year, like other *Drymœcæ*, haunting high grass, bushes, and grain-fields. I am indebted to Mr. Fairbank for all these details.

D. adamsi is distinguished from *D. inornata* chiefly by its smaller size, much shorter tail, and rather more slender and shorter bill. It is less rufous in colour; and the claws are rather smaller and straighter, the hind claw especially.

This bird will, I suppose, be placed in *Drymoipus* by the believers in that genus. To quote Dr. Jerdon, B. Ind. ii. p. 178, "The genus *Drymoipus* was instituted by Bonaparte for the Asiatic *Drymoicæ*. It differs from *Prinia*," &c. &c. "The species have usually been classed under *Drymoica*; but Bonaparte has separated the Indian species from the African ones, and, though unaware in what points they differ, I shall follow Mr. Blyth's example and keep them distinct." Mr. Blyth, however, has never assigned any better reason than Bonaparte, who gave none at all. Blyth followed Bonaparte, and Jerdon follows Blyth; and Gray, in the Hand-list of birds, follows Jerdon, or, rather, improves upon him, in a very dubious manner, by making *Drymoipus* a subgenus of *Prinia*.

Now, when *Neophron ginginianus* is proved to be generically distinct from *N. percnopterus* (even its specific difference is as yet dubious)—when *Gyps bengalensis, G. indicus,* and *G. fulvus* of India are conclusively shown to belong to a genus different from that which includes *G. bengalensis* (*v. africanus*?), *G. rueppelli*, and *G. fulvus* of Africa—when *Circus swainsoni, Elanus melanopterus, Cypselus affinis, Oxylophus jacobinus, Ceryle rudis, Lanius lahtora, Saxicola isabellina,* and a number of other birds are proved to be distinct, generically as well as specifically, from the African forms which go by the same names—when it is clearly demonstrated that species like *Micronisus badius, Aquila fulvescens* (*v. fusca*), *Merops viridis, Centropus viridis, Dicrurus macrocercus, Tchitrea affinis, Chatorhæa caudata, Oriolus kundoo, O. melanocephalus, Pratincola leucura, Parus nuchalis, Zosterops palpebrosus,* &c. (I take a very few instances out of a host) are respectively diverse, to a degree which it is justifiable to consider generic, from their African representatives (*Micronisus sphenurus* and *M. brachydactylus*, *Aquila nævioides*, *Merops viridissimus*, *Centropus monachus*, *Dicrurus divaricatus*, &c., *Tchitrea melanogastra*, *Chatorhæa acaciæ*, *Oriolus galbula*, *O. monacha* and others, *Pratincola hemprichi*, *Parus leuconotus*, *Zosterops poliogastra*, &c.), then I shall be willing to admit that the circumstance of species being found in India is a good *à priori* reason for believing that they belong to a different genus from their African allies. But until these few difficulties have been overcome, I shall wait for better structural distinctions than have yet been pointed out before I admit the Indian *Drymœcæ* to be generically separated from their African relatives.

In the July number of this year's 'Ibis' (1871), Dr. Jerdon refers to a specimen of Hodgson's *Buteo plumipes*, obtained by me in Sikkim. The specimen is a female in good plumage, agreeing admirably with Hodgson's description; and it appears to me to differ from all allied forms, including *B. japonicus*, in the small size of the tarsal scutes, in front especially. I have described the specimen at greater length in a paper to be published shortly in the Journal of the Asiatic Society of Bengal, together with my other Sikkim collections.

I remain, &c.
W. T. Blanford.

P.S. In what respect does *Pellorneum subochraceum*, Swinhoe, Ann. & Mag. Nat. Hist., April 1871, differ from *P. tickelli*? J. A. S. B. 1859, p. 414. They appear to me to be identical.

Sir,—With reference to Mr. Hume's statement in 'The Ibis,' 3rd ser. vol. i. p. 404, allow me to remark that *Haliaëtus albicilla* never occurred to me in Lower Bengal, but that the specimen to which he refers is probably one of *H. leucocephalus* in immature plumage, noticed in 'Journ. As. Soc. B.' vol. xxiv. p. 253. It is easy to distinguish specimens set up from dry skins from those which have been mounted immediately from fresh ones, as were the four examples of *H. leucoryphus* noticed in my Catalogue, published in 1849. Between that date and the end of 1862 (when I left India) very considerable accessions to the live collection which I superintended had been made from time to time; besides which I was quite as familiar with *H. albicilla* as with *H. leucoryphus*, and therefore do not believe that I could possibly have mistaken one for the other. Whether or not I am right in my conjecture about *H. leucocephalus*, I feel confident that the Museum specimen referred by Mr. Hume to the young of *H. albicilla* will prove, on examination, to have been set up from a dry skin received from Europe.

Now as to *Haliaëtus lineatus*, as figured by Hardwicke. There was, if there is not still, a juvenile specimen, in the Calcutta museum, of *Polioaëtus ichthyaëtus* in the spotted plumage, resembling that of the young of *Milvus govinda*. Again, of two young examples of *Haliaëtus leucoryphus* it is stated by Capt. Hutton (as cited by Mr. Hume) that "at the end of five weeks the young ones exhibited as nearly as possible the plumage of the bird figured by Hardwicke and Gray as *H. lineatus*." Now in a young one of the latter species which I saw taken from the nest (which contained along with it one addled egg), and which I kept alive for several months until I shipped it, the colouring remained from the first that of *H. unicolor* of Hardwicke. How are we to reconcile such discrepancies? It is well known that the young of *Loxia curvirostra* is usually lineated like a young Goldfinch or Greenfinch; but two or three years ago I was very much surprised to see a living young Crossbill, with its feathers not fully grown, the plumage of which was not at all lineated, but quite resembled that of an ordinary mature female. That young Crossbill, by the way, must have been hatched in England, towards the end of December! When ascending to rob the nest of *Haliaëtus leucoryphus* referred to, the lad I sent up the tree (a high and very difficult one to climb) was certainly about to be attacked by the female Eagle, when I fired at her and unfortunately only broke her leg, which hung down as she continued to fly around; but neither she nor her mate approached afterwards within reach of the gun. The bird was approaching nearer and still nearer at every sweep, and the peril of the lad seemed imminent, when I pulled the trigger in his defence.

Among the mounted skins in the British Museum may be seen, side by side, examples of the young of *Huhua nipalensis* and *H. orientalis,* which are very strongly distinguished from each other; and I have no hesitation in pronouncing, contrary to the opinion of Dr. Jerdon (Ibis, 1870, p. 346), that the Tenasserim specimen which was designated *Ptiloskelos amherstii* by Col. Tickell is the young of *H. nipalensis,* and not of *H. orientalis.* I have the most distinct remembrance of it, and assign it thus without any hesitation,—an identification which considerably extends the ascertained range of the much larger Himalayan species.

Among the specimens of economic zoology which are now exhibited in the India-House Museum, I lately noticed a heap of skins labelled as "Indian Game-birds." Among them I remarked two species of Sand-Grouse which have not been admitted hitherto into the Indian avifauna, viz. a fine pair of *Pterocles guttatus* (sive *senegallus*) which are marked as having been procured by Griffith, at Koree, in Sindh, and one specimen of *P. coronatus,* which was also procured by Griffith; but the locality is not mentioned. Both species have been figured in Gould's 'Birds of Asia.'

The late distinguished botanist, Samuel Griffith, as is well known, made zoological collections in Sindh and Affghánistân, and afterwards in the Khásia hills; and those collections having got mixed up, not a few of the Khásia species are erroneously set down as having been obtained in Affghánistân in the Catalogues of the specimens of Mammalia and Birds contained in the London East-India Museum, prepared by Messrs. Horsfield and Moore. A list of such species may not be unacceptable even now, inclusive of a few marked with a note of doubt, but which, as I suspect, were obtained in the more eastern locality by Griffith. Of mammalia, *Urva cancrivora, Mustela horsfieldi Lutra indigitata*?, and *Sorex griffithii.* Of birds:—

Circus melanoleucus.
Ketupa ceylonensis?*
Nyctiornis athertoni.

Psarisomus dalhousiæ.
Halcyon leucocephalus.
Pericrocotus peregrinus.

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* Since obtained in the valley of the Jordan by Dr. Tristram.

Zoothera marginata.
Turdus ruficollis?[*] Adult and young.
Merula castanea.
Myiophoneus temmincki.
Garrulax leucolophus.
Actinodura egertoni.
Sibia gracilis.
Timalia pileata.
Pomatorhinus hypoleucus.
Ixus flavescens.
Spizixus canifrons.
Oriolus traillii.
Ruticilla rufiventris (nipalensis).
R. leucocephala.
Henicurus immaculatus.
Liothrix luteus.
L. argentauris.
Ixulus castaneiceps.
Parus cinereus.
Pnoëpyga longicaudata.

Another bird which I cannot help thinking is assigned to Afghânistân and Tibet by mistake, is the *Yunx indica*, Gould, which, as suggested to me by Mr. R. B. Sharpe, appears to have been founded upon a specimen of the South-African *Y. pectoralis*, Vigors, just as the *Cisticola magna* of Gould's 'Birds of Australia' was long ago shown by Strickland, in the 'Contributions to Ornithology,' to have been founded on a specimen, lent by himself, of what afterwards proved to be the South-African *Drymœca levaillanti*. In Malherbe's monograph of the *Picidæ*, a copy of one of Mr. Gould's figures of his alleged *Y. indica* is given in the same plate as a figure of *Y. pectoralis* and one of *Y. æquinoctialis*; and it certainly does not appear to me in what respect the two former differ as species from one another.

I am yours, &c.,
E. Blyth.

Professor Newton informs us that Dr. Bessels, who has already had some experience in Arctic zoology, has embarked as a naturalist with the American Expedition under Captain Hall, the object of which is to reach the North Pole by way of Smith's Sound. It was originally intended that Dr. David Walker, who served as naturalist on board the 'Fox' during her ever memorable voyage in 1857–59 in search of the Franklin Expedition, and contributed to this Journal a paper on the birds he then observed (Ibis, 1860, pp. 165–168),s hould accompany Captain Hall; but unfortunately this arrangement was not adopted. It is to be feared, from what we hear, that scientific research forms but a very secondary object in the programme of this expedition. Still all who have engaged in it have our best wishes for success. If the road to the Pole can be but shown, we are sure ornithologists will not be slow in following it.

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[*] Procured in the Khásias by Major Godwin-Austen.

The best friends of 'The Ibis' have not been limited to those whose names have appeared oftenest, or even many times, in its pages. In this country ornithology has many of its warmest supporters among men who scarcely ever published a line on this subject. Such an one was EDWARD CLOUGH NEWCOME, an original Member of the B. O. U., who died on the 22nd of September last, having nearly completed his *sixty-second* year. Devotedly attached from his boyhood to field-sports, and having abundant opportunities for their enjoyment, his undoubted preference was for such as brought him more especially into contact with the wilder and less-known kinds of birds; and being a close and accurate observer, his knowledge of their habits and peculiarities was of extraordinary extent. As an efficient falconer he was, perhaps, unequalled, whether by professionals or amateurs; and for many years he was, in England, almost the sole and certainly the most influential supporter of that ancient and nearly obsolete sport. In the pursuit of what are ordinarily termed "wild fowl," and in the exercise of the various modes by which they are procured, he had attained an aptitude little, if at all, inferior to that of men whose livelihood depends on the successful practice of their vocation. But experience in the field was not all :- one of his favourite employments was the formation of a collection of British birds; and this, consisting almost entirely of specimens preserved and set up by his own hands, remains one of the best of its kind in the kingdom, whether for the completeness and rarity of its contents or for the artistic taste and ornithological truth with which they are mounted. Some of the species in it are represented by the only examples supposed to have been obtained in Britain. Such are the Rock-Thrush (*Petrocincla saxatilis*), the Capped Petrel (*Æstrelata* *hæsitata*—which he himself rescued from the hands of his hawking-boy), and the Lineated Buzzard (*Buteo lineatus*). Mr. Newcome's single contribution to ornithological literature is, we believe, limited to a brief notice in this Journal (Ibis, 1865, p. 549) of the bird last mentioned; but he was always ready cheerfully to communicate the results of his long experience to others, and the writers are not few who have availed themselves of his knowledge of the particular subjects in which he was so great a proficient.

Mr. Sclater has received a letter from Mr. W. T. Blanford (dated Kurrachee, Nov. 16th) announcing that he has been appointed a Member of the British Expedition for the survey of the boundary between Persia and Beloochistan. After finishing the boundary between Mekran and Persia, near the coast, the party will proceed northwards to Seistan and Herat. This will bring them into a most interesting and quite unexplored country, both geologically and zoologically, of which this energetic naturalist is quite sure to take due advantage.

Mr. Blanford remarks that Kurrachee is fairly within the uniform fauna of the desert region. On going out before breakfast he had shot four birds—*Galerita cristata, Calandrella brachydactyla, Saxicola isabellina,* and *S. deserti.* The same four species he had found amongst the commonest at Anerly Bay when he landed there with the Abyssinian Expedition.

Mr. T. K. Salmon, of Guildford, will shortly leave England on a collecting-expedition to the highlands of the United States of Columbia, and will probably fix his headquarters at Medellin, the capital of the State of Antioquia. Hence he will be in a convenient position to explore the adjoining Cordillera of Quindiu, and Peak of Tolima, and to investigate the zoology of the upper valley of the Cauca, which has hitherto attracted very little attention. Mr. Salmon's agent is Mr. Edward Gerrard, jun., of 31 College Place, Camden Town, who will be happy to receive subscriptions and orders for the expedition.

THE IBIS.

THIRD SERIES.

No. VI. APRIL 1872.

XII.—*On Birds recently observed or obtained in the Island of Negros, Philippines.* By Arthur, Viscount Walden, P.Z.S., and Edgar Leopold Layard, F.Z.S.

(Plates IV.–VI.)

The Philippine Islands supplied the materials for the earliest memoir on exotic birds that has come down to us, written by the Moravian Jesuit, Camel, in 1703 (Phil. Trans. vol. xxiii.). From examples collected in the Philippine archipelago by Poivre and by Sonnerat, descriptious of many of the oldest species in our books were taken. Still, even at the present time, our knowledge of Philippine ornithology continues to be of the most elementary character, only 193 species being noted (v. Martens, J. für O. 1866) as known to inhabit the large and diversified area contained within the limits of the archipelago—an area which occupies an estimated surface of 110,000 square miles of dry land. When we consider the favourable geographical position of these islands (closely connected with Borneo on the S.W., with Celebes on the S., and the Moluccas on the S.S.W., and lying in the direct track of the migrants from north-eastern and eastern Asia), the varied physical characters of the islands themselves, their mountainous regions covered with vast unexplored forests, their broad tracts of open country devoid of all cultivation, the few ornithologists who have visited the archipelago (not exceeding eight in number) since the time of Sonnerat (1771), and that only three or four points were touched by them (Manilla, Antigua, Zamboanga), we may well believe that many new forms remained to be discovered, and that many more known species to be recognized, by the first enterprising traveller who determines to explore thoroughly these almost unknown and attractive islands. We know of no part of the world that would more amply repay the zoological traveller. The climate is good, the country easy of access, and teems with animal life*.

In the mean time any additional contribution to our knowledge of the Philippine avifauna, however limited, is of exceptional value; and we therefore propose to give an an acconnt of small collection of birds and of birds' eggs recently obtained in the island of Negros, by Mr. L. C. Layard. Many of his letters to his father, Mr. Edgar L. Layard, contain notes relating to the natural history of this island; and we propose to publish, as they were written, all those observations which bear on its ornithology, feeling sure that they will be found to contain matters of interest to the readers of 'The Ibis.'

The island of Negros is situated between latitude 9° 3′ and 10° 58′ N., and longitude 122° 28′ and 123° 29′ E. Its length may be roughly stated to be about 130 miles, its average breadth 25 miles, and its area 3780 square miles. It is separated from the Philippine islands of Panay on the N.W., and of Cebu or Zebu on the S.E., by narrow channels. Mr. L. Layard says in one of his letters, "I have a fine view from my window, the sea on one side, with Guimaras (a small island) and Panay in the distance on the other; fields of cane, enclosed by two rivers, and bordered by banana and cocoanut trees, stretch up until they reach the forest and the mountains." A range of mountains with lofty peaks runs north and south through the island, the centre of which is little known even now. It appears to be inhabited by a small race of Negroes, called Negritos, from whom the island derives its name.

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* The only real danger which appears to attend travelling in some parts of the Philippines si caused by the piratical Malays. But, from a passage in one of Mr. L. Layard's letters, it would seem that Englishmen with proper introductions to the chiefs would run but little risk if *unaccompanied by Spaniards*.

Mr. L. Layard writes—"Judging from my remembrance of Table Mountain, I should say that the range behind the Hacienda and the Koun Loun volcano, must be nearly 5000 feet high. Their tops are very rugged and covered with trees; and they look very grand after a shower, when long streaks of cloud are caught halfway up them, and detached patches are scattered along their slopes, clinging to the trees."

These forests abound with cabinet-woods of great beauty and of the finest quality. The trees attain a vast height; "most of them have huge buttresses on each side, and then an immense trunk, rising, some of them, for upwards of 100 feet without a branch, and as round and as straight as an arrow. It is useless to fire at anything in the heads of these giants, unless with buck-shot. I was a long while under a flock of the large Hornbill (*Buceros hydrocorax*?); but it was of no use to fire at them. Most of the trees were covered with parasitic orchids, creepers, and climbing ferns of all descriptions; and the whole forest was alive with gay Parrots, Hornbills, gaudy red Woodpeckers, and butterflies of every hue. Several sorts of Pigeon were flying about; and we heard noises that the guide said were caused by a peculiar monkey, but we did not see any of them. There were lots of small dark-blue Swallows flitting about under the trees in the partially cleared places, which I had not seen elsewhere. On the outside the underwood had been cut down, and in its stead were the bright green leaves of the banana (hemp) plant standing in rows."

The Parrots to which he alludes he afterwards obtained, and describes as "a large green Parrot, with a blue patch above the root of the tail, and a large red beak, out of which I took good care to keep my fingers." This is probably either *Tanygnathus muelleri* (Temm.) or else a new species. *T. muelleri* has been doubtfully stated to occur in the southern Philippines (*conf.* O. Finsch, Pap. ii. p. 360).

From the forest-clad mountains numerous rivers, abounding in fish and crocodiles, descend to the sea, which equally swarms with sharks. Up one of these rivers Mr. L. Layard proceeded on one excursion. "We went about 40 miles down the coast in the little steamer to a place called Ponte Vedra. Next morning early we got a 'dug-out' and went up the river. It was very lovely, with huge trees drooping down to the water's edge on each side, but very lonely, as there were hardly any birds and no butterflies, only a few of the red and blue and blue and white Kinghunters (*Halcyon gularis* and *H. chloris*), and some Kingfishers about, a Dove or two flying overhead, and half a dozen Anhingas (*Plotus melanogaster*) in the water. We went out shooting in the afternoon; but it was cold and rainy, and we did not see half we ought to have seen in the river-bush. I shot two large white Cockatoos and some Doves, also a lizard, 3 feet long, with a sort of large fin on the root of his tail (*Hydrosaurus* ?)*. The Cockatoos have bright red eyes, red feathers under the tail, and yellowish under the wing."

No specimens of this Parrot were preserved; but were it not for the expression "large" we should not hesitate to identify the bird with *Cacatua hæmaturopygia* (Müll.) = *Ps. philippinarum*, Gm. No other known species agrees with the above description, and no other Cockatoo has been described as an inhabitant of the Philippines. But the exact habitat of the true *C. philippinarum* itself has never been accurately determined; for that bird does not appear to have been seen wild by any trustworthy traveller. It is therefore to be regretted that we are unable to identify with absolute certainty the bird referred to by Mr. L. Layard. It is, however, probable that the term "large" was not used comparatively, and that in the Island of Negros we have at length discovered one point in the archipelago where *C. philippinarum* is indigenous.

In another of his notes Mr. L. Layard alludes to his bathing in the river, and mentions that "the Bee-eaters have a beautiful scarlet patch on the head; they frequent a bamboo clump, and sit on the lateral branches while I swim beneath; so I get a good view of them." No examples were secured, and we are unable to identify the bird. Mr. L. Layard, from African experience, is well acquainted with *Merops*; and so there can be little doubt that he is correct in the genus. The species may possibly be a form of *Nyctiornis*.

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* [This may be *H. nuchalis*, described by Dr. Günther in P. Z. S. for February last, which we have some reason to believe may have come from Negros.—Ed.]

The Kinghunters (*Halcyon gularis* and *H. chloris*) frequented the house and buildings of the sugar-factory. "Three of the latter keep about the old 'camarine' and the bamboo staging of the chimney; and I hope to get their eggs."

"A Wagtail, with a breast as yellow as a 'Seysie's" (*Crithagra sulphurata*), was also common—probably *Budytes viridis*. "A little 'Sun-bird,' with back of head and shoulders of a brilliant scarlet (probably *Dicæum cruentatum*), frequented some shrubs near, as did also a Flycatcher with a dull red throat and a white stripe along the eye." This last may be *Muscicapa mugimaki*, Temm. & Schl., a species which migrates from Siberia to Malacca (*Erythrosterna erythaca*, Blyth).

The eggs of *Halcyon chloris* were not obtained; but the eggs of a bird, the description of which agrees with *Calornis payanensis* (Scop.) = *cantor*, Gm., were secured. Mr. L. Layard states that this species breeds in the holes of the bamboo staging erected round the engine-house chimney, to catch the bricks in case of its being shaken down by an earthquake, and thus avert the serious accidents that might result from its fall.

The eggs are of various shades of verditer, blotched somewhat sparsely, but thickest at the obtuse end, with irregularly shaped spots and blotches of dark brown, madder, and faint purple. Axis 13‴, diam. 9½‴.

Mr. L. Layard says that these birds fly in small flocks, and that their habits reminded him of the Cape *Juida morio*. The irides he describes as red.

Besides the little blue Swallow already noted, Mr. L. Layard mentions "a small dark Swift" (a *Collocalia*?, one of the products of the island being edible birds' nests), and a Swallow, the common one of the country, probably *Hypurolepsis javanica* (Sparrm.), of which he sends four eggs. Unfortunately no description of this bird or of its nest is given. The eggs are of a dirty pink ground, profusely sprinkled with dark madder-coloured spots, which are notably coarsest and closest set at the obtuse end, with a faint indication of some light purple ones in the form of a ring. Axis 9‴, diam. 6‴; but they vary in shape, some being longer and narrower.

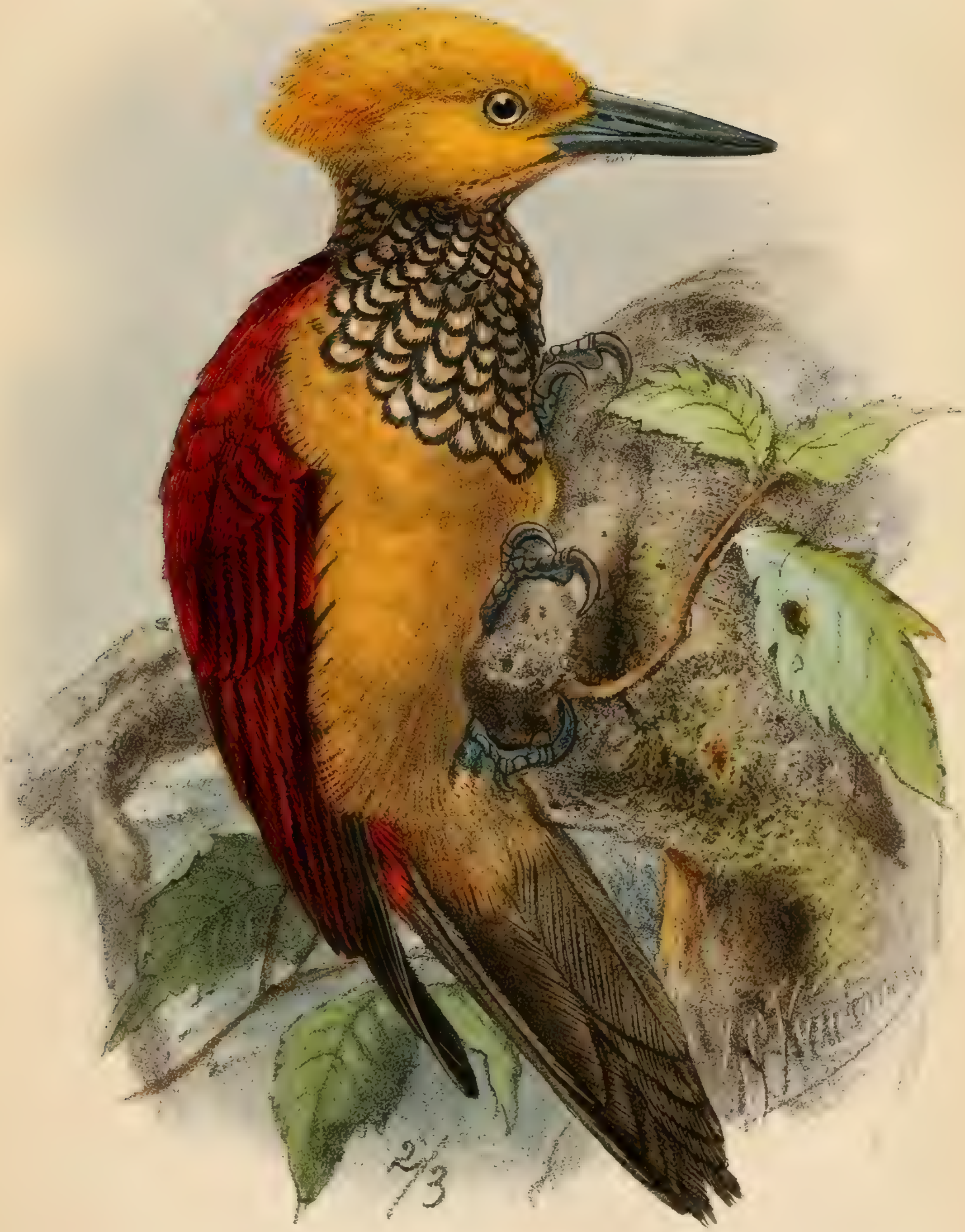
On the 2nd February an excursion was made to the Island of Guimaras, situated in the channel which separates Panay from Negros. Besides two large Hornbills, twelve examples of a large fruit-eating Pigeon, apparently an undescribed species, *Ianthœnas griseogularis*, nob., were obtained.

The tameness of some of the Falconidæ is illustrated in the following passage:—"We are awfully bothered with locusts; but it is a curious sight, the men all assembled and beating old tins to drive them away, the great red-backed Kites (*Haliastur indus*?) swooping down and catching them in their feet and eating them in the air, and lots of smaller Hawks, Flycatchers, and Swallows harrying the swarm; and then the sound of their rushing wings!!" "There is one fine Hawk about the size of *Circus maurus*, white breast, black head and throat, and white wings tipped with black (*Circus melanoleucus*?), and another beautiful little Hawk very much like the one we shot with Capt. B. on the Flats near the windmills (this was *Hypotriorchis subbuteo*). He sat in a tree eating his locust, and would not fly, though I twice struck the branch beneath him with a stone. I have not yet got my gun out of the clutches of the Spanish Custom-House, or he would have come to grief." (This is probably *Falco severus*.)

The want of his gun prevented Mr. L. Layard obtaining many of the birds observed. The Spanish Customs' authorities detained his gun (a double-barrel 12-bore Westley Richards) for many months on the plea that it was a "pea"-rifle! It appears it is necessary to get a license from the Spanish authorities to live in the islands, and another to possess and use a gun.

"Last week coming out of the 'camarine,' I saw a fine Eagle hovering just over my head, and its mate higher up. How I longed for my gun! It was a whity brown, with a large white tail, and as big as any of our Cape Eagles. It is evidently a rare species, as I have only seen these two. One was shot by a Middy some months ago, and the foot is still here; it is large." He saw the species again, "sailing along the coast, and nearly got a shot at one" (*Cuncuma leucogaster*?).

Ibis 1872. Pl. IV



J.G. Keulemans lith.

M & N. Hanhart imp.

CHRYSOCOLAPTES XANTHOCEPHALUS.

The rainy season commences on the western coasts of the Philippines at the end of April, and continues to September, the eastern coasts being dry until October, when they, in their turn, become subject to heavy rains. Mr. L. Layard thus alludes to the ushering in of the May monsoon:—"The monsoon broke on the 25th of April, and Snipe and Ducks are beginning to come in with the rains; I have shot two Curlews also. Last week I was riding round, and a pair of Ducks in a buffalo wallow let me ride up to them within ten yards. I galloped home, loaded the one barrel of L.'s rusty old gun, that had a nipple in, and returned. They were still there, and I took one as they rose. They are fine birds, as large as a 'Geelbec' (*Anas flavirostris*), pearly-grey bodies, reddish heads, and blue-striped wings—first-rate eating! There is also another Duck in the island, smaller, and more red about it. They are called here 'Gatek.' I bagged five of them at Samag last week." The small species is probably *Dendrocygna vagans*; the larger we are unable, for want of an example, to identify. The description given above does not agree with any one of the only four species of Ducks known to inhabit the Philippines.

The following list contains the names of the species represented by examples sent to England. An account of the eggs collected is added.

Chrysocolaptes xanthocephalus, sp. nov. (Plate IV.)

Entire head, including the normal generic crest, chin, cheeks, and ear-coverts, and the whole under surface of body, except the throat and breast, pure golden yellow, brightest on crest. A very faint mesial chin-line, and two equally faint lines following the rami of the mandible, brown. Throat and breast covered with scale-like golden-fulvous feathers, each being broadly and distinctly bordered with black. Back, uropygium, wing-coverts, and secondary quills carmine. Upper tail-coverts and rectrices deep brown. Primary and spurious quills dark brown, the outer edges of the spurious quills, and the outer edges of the basal half of the primaries being golden olive.

First primary unspotted, but with white indicated at the inner edge of web near the insertion. Two white spots on inner edge of second quill, somewhat ill-defined and barely separated. Third quill with two well-marked and separate white spots. Fourth quill like third, but with an additional faintly marked and smaller spot. Fifth and sixth quills, with three clear white spots. Three spots on the inner webs of the remaining quills, both primary and secondary. Under shoulder-coverts mottled dirty golden and brown, with carmine tips. "Bill and feet horn colour; eyes white (?)."

Wing 6 inches; tail 4; bill from forehead 1·5, from gape 1·75; outer hind toe 1·12; outer front toe 0·87; tarsus 1·12.

Described from a single individual obtained in the Island of Negros, and stated on the label to be a female.

The carmine dorsal colouring of this species closely resembles that of *Ch. carlotta** (Malh.), *Ch. hematribon* (Wagler), and *Brachypternus erythronotus* (Vieill.) *apud* Malh.

The male bird may prove to possess a red head, as in the rest of the genus.

XANTHOLÆMA ROSEA (Cuv.): R. A. 1817, i. p. 428, *ex* Levaillant.

Le Barbu rose gorge, Levaillant, Ois. Parad. ii. p. 75, pl. 33, "Java."

"♂, iris brown; feet coral; bill black; stomach, beetles. Island of Negros."

The bill in this example is somewhat larger than in Javan individuals; otherwise no material difference can be detected between specimens from the two localities.

EURYSTOMUS ORIENTALIS (Linn.): S.N. i. p.159, no.4 (1766), *ex* Brisson.

Galgulus indicus, Briss. Ornith. ii., p. 75. no. 4, pl. 7. f. 2. "India orientalis."

"♂, iris brown; bill and feet red. Shot in the forest, Island of Negros, March."

Agrees in every respect with examples from Menado and Malacca.

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* A true and typical *Chrysocolaptes*, although classed as a *Brachypternus* in the Hand-List, no. 8748.

Entomobia gularis (Kuhl): Sharpe, Mon. Alced. pl. 60, p. 165.

Three specimens collected, two males and one female, in full plumage. They do not differ from Luzon examples in Lord Walden's collection, nor is any sexual distinction to be detected.

"*a.* ♂, iris light brown, bill brick-red, feet coral; stomach, worms; shot in a ploughed field.

"*b.* ♂, stomach, small fish; shot on river-bank.

"*c.* ♀, iris light brown, bill brick-red, feet coral; stomach contained large grubs."

Sauropatis chloris (Bodd.): Sharpe, Mon. Alced. pl. 87, p. 229.

Alcedo collaris, Scopoli, Fl. et Faun. Insubr. ii. p. 90. no. 56 (1786), *ex* Sonnerat.

"♂, iris brown; feet dark brown; bill black; stomach, small crab. March, Island of Negros."

Petrocossyphus solitarius (Müll.): Suppl. p. 142, no. 46, *ex* Pl. Enl. 636.

"♂, iris brown; bill and feet almost black; stomach, seeds; frequents old buildings, rare. Negros, March.

Broderipus acrorhynchus (Vigors): P. Z. S. 1830–31, p. 97, "Manilla:" Gray and Mitchell, Genera, pl. 58.

"♀, bill pink; feet black; stomach, seeds. Island of Negros."

Mr. Gray (H.-l. no. 4305) has suppressed Vigors's title for the Philippine Oriole and adopted *chinensis*, Linn. In this rectification we are unable to concur:—first, because the Linnean type was brought from Cochin China by Poivre and given to Réaumur (Brisson, Orn. ii. p. 328); secondly, because Brisson, who described from Poivre's example, distinctly states (*l. c.*), "*alarum remiges sunt nigræ: ex minoribus tamen aliquot exiguâ maculâ flavicante terminantur.*"

B. acrorhynchus and *B. frontalis* (Wall.) appear to be the only two known species in which the yellow wing-spot is wanting.

Copsychus mindanensis (Gm.): S. N. i. p. 823. no. 76, *ex* Montbeillard.

Le Merle de Mindanao, Montb. Hist. Nat. iii. p. 387; Pl. Enl. 627. f. 1.

"Iris brown; bill and feet black; stomach, insects. Island of Negros."

The single specimen sent has the under wing-coverts entirely black as in *C. pluto* (Temm.). This at once distinguishes the Negros bird from the Dhayals of India, Ceylon, Burma, Malayan peninsula, and Java. Unfortunately the Negros example possesses only eight perfect rectrices; but these are entirely black. The stump of a ninth, however, is present; and it, as far as it remains, is also black. It may be inferred, therefore, that at least ten of the rectrices of the Negros *Copsychus* are black, and it may be possible that all the twelve are black. Without other Philippine examples to compare with, it cannot be decided whether this Negros individual agrees with the Mindanao species. But for the present it is proposed to regard the two as identical.

The Malayan and Javan *Copsychus* hitherto referred to *Turdus mindanensis,* Gm., differs from this Negros individual in having six white outer rectrices, and in having the under wing-coverts white centred with black. These characteristics have been verified by an examination of a considerable series of Malayan-peninsular and Javan specimens. As is well known, Indian, Cingalese, and Burmese examples have the under wing-coverts pure white, and possess eight white rectrices.

The oldest title for the Malayan and Javan *Copsychus* appears to be *Lanius musicus,* Raffles, Tr. Linn. Soc. xiii. p. 307 (1822), given to the Sumatran species, which in all probability will be found to agree with the Malayan and Javan.

In many individuals of *C. saularis* the fourth pair of rectrices, and in *C. musicus* the third pair, are more or less brown or black.

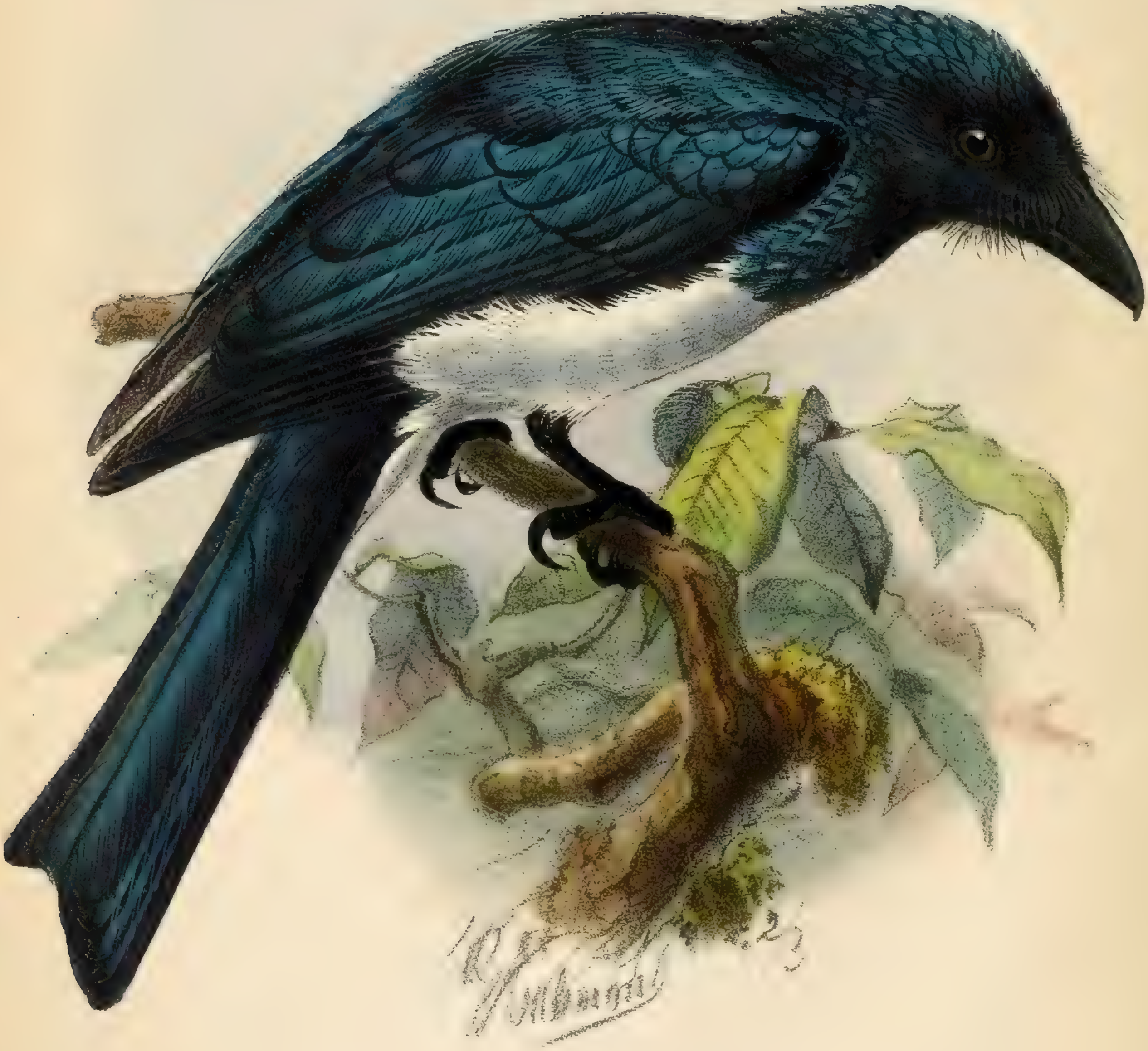
Hypothymis azurea (Bodd.).

Gobemouche bleu des Philippines, Montb. Hist. Nat. iv. 534.

Muscicapa cærulea, Gm., Kittlitz, Kupf. p. 7, t. 9. f. 1.

Muscicapa occipitalis, Vigors, P. Z. S. 1830–31, p. 97, "Manilla."

Ibis 1872 PL V.



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DICRURUS MIRABILIS

An example sent does not differ from Indian and Ceylon individuals. By Montbeillard's title it appears that the type came from the Philippines.

DICRURUS MIRABILIS, sp. n. (Plate V.)

Lower breast, abdominal region, flanks, and under tail-coverts pure white. Remainder of plumage black, with glossy green reflections. Tail but slightly forked. Bill black. Wing 5·5; tail, outer rectrix 5·37, middle pair 5; bill from forehead 1·18, from gape 1·37; hallux 0·50; tarsus 0·87.

From a single example, sex not noted, Island of Negros. "Eyes black (?), feet and legs black. High in the mountain forests. Stomach, insects. Usually in pairs; scarce, only saw them one day." The colour here given of the irides requires confirmation.

This species belongs to the group of which *D. balicassius* (Linn.) is the type, and the members of which are principally Papuan. In the shallow bifurcation of the tail it comes nearest to *D. balicassius*. No other species of this genus as restricted displays any white in the plumage, beyond the usual white markings of the under wing-coverts, found more or less to prevail throughout the *Dicruridæ*. Its analogue in *Buchanga* is *B. fingah* (Linn.).

GYMNOPS CALVUS (Linn.): S. N. i. p. 164. no. 2 (1766), *ex* Brisson.

Merula calva, Brisson, Orn. ii. p. 280. no. 36, pl. xxvi. f. 2. "Philippine islands" (1760) descr. orig.

Le Goulin, Montb. Hist. Nat. iii. p. 420.

Gracula calva, Gm. S. N. i. p. 396, no. 2.

Le Goulin gris, Cuv. R. A. 1829, i. p. 381.

Gracula calva, Linn. *ap.* Kittlitz, Kupf. p. 9, pl. xiii. f. 2.

Gymnops griseus, Cuv. *ap.* Meyen, N. Act. Acad. C. L.-C. Nat. Cur. vol. xvi., Suppl. 1. p. 78.

Gymnops tricolor (Müller), *ap.* G. R. Gray, Hand-list, no. 6275, *nec* Müller.

One specimen sent. "♀, iris brown; bill and feet black; stomach, seeds. Shot on a cocoa-nut tree, Island of Negros."

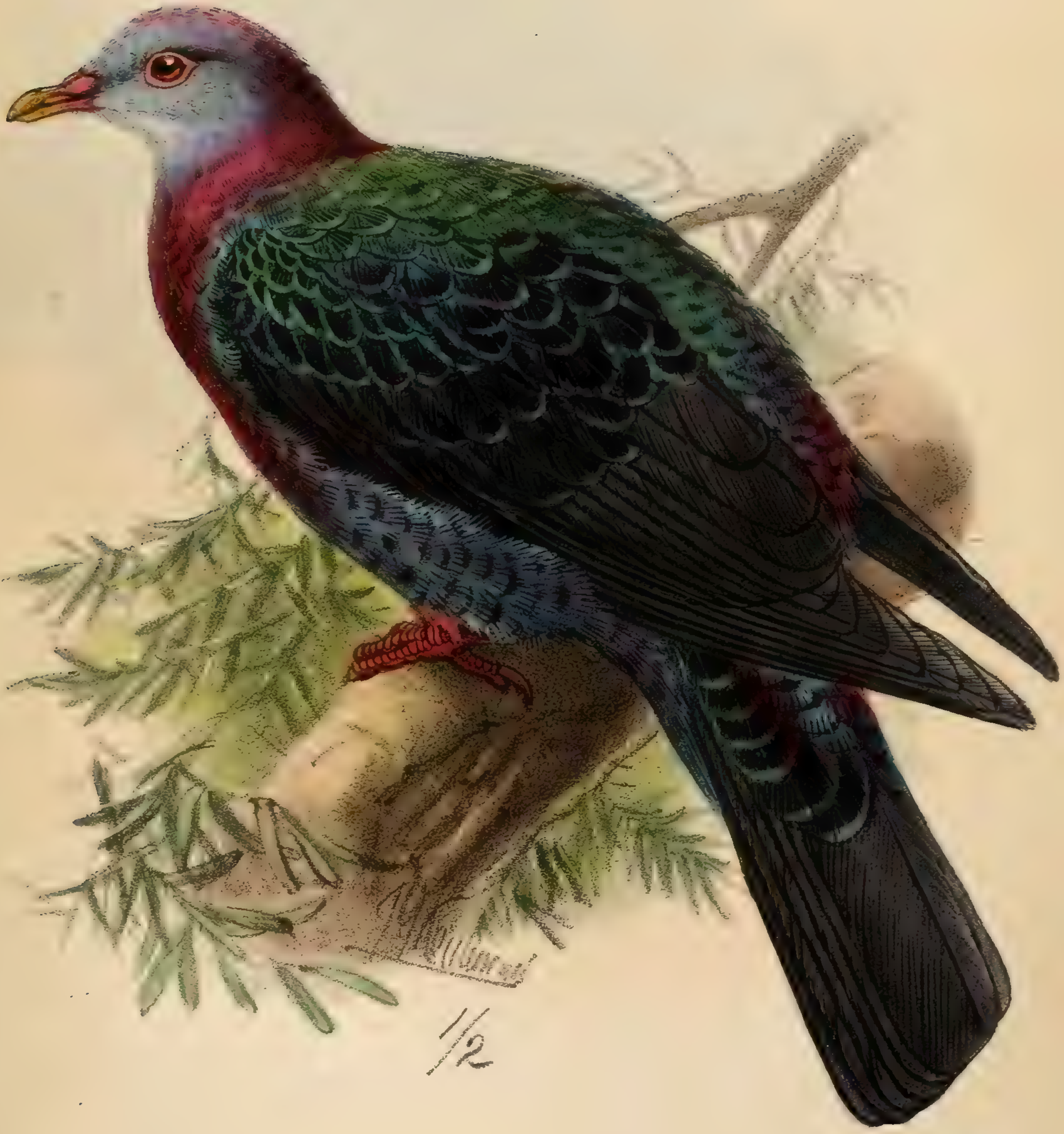
Montbeillard (*l.c.*) has described apparently two totally distinct species of bald Grakles from the Philippines under his title of *Le Goulin*. One, brought from the Philippines by Sonnerat, is identical with Brisson's *Merula calva*; the other, which is the species figured in the 'Planches Enluminées,' no. 200, has never since been recognized. This last is stated by Montbeillard to be smaller, to have the under plumage yellowish brown, and the feet, legs, and the anterior portion of the bill, *yellow*. The figure also (Pl. Enl. 200) certainly represents a bird widely differing from *Gracula calva* auct. Montbeillard (*l. c.*) further remarks that the bald-headed bird brought from the Philippines by Sonnerat, although much resembling the bird figured, yet differs in its size and its plumage. The smaller bird (Pl. Enl. 200), he surmises, may be the young. Kittlitz (*l.c.*) states that the sexes are alike in plumage, but the female is smaller. No title has been founded on Pl. Enl. 200. Nor has Cuvier anywhere published the name *griseus* usually attributed to him. Mr. G. R. Gray (*l. c.*) has superseded the appellation *calvus*, Gm., by that of *tricolor*, Müller, and quotes Pl. Enl. 200. There seems, however, to be no authority for discarding the time-honoured name of *calvus*, even if it had only originated with Gmelin and not with Linnæus. Müller's *Corvus tricolor* was founded on Pl. Enl. 521, = *Corvus* (*Gymnocephalus*) *calvus*, Gm., not *Gracula calva*, Gm. Müller has not bestowed any name on the bird figured in Pl. Enl. 200, nor on *Merula calva*, Brisson.

PHAPITRERON LEUCOTIS (Temm.): Pl. Col. 189.

"♀, iris brown; bill black; feet coral; stomach, small chilies. Island of Negros."

IANTHŒNAS GRISEOGULARIS, sp. nov. (Plate VI.)

Upper surface of head from bill to nape grey, brilliantly tinted with light purple. Chin, cheeks, ear-coverts, and throat pale grey, faintly tinged on sides of head with vinous. Nape and neck green, but changing in some lights to ashy tinted with bright purple. Breast beautiful, uniform, bright purple, changing in some lights to greenish ashy, as in shot silk. Abdomen, flanks, thigh-coverts, ventral region and under tail-coverts dark ashy, many of the feathers being edged with the purple colour of the breast. Back and uropygium ashy brown shot with the



J.G.Keulemans lith

M & N Hanhart imp

IANTHŒNAS GRISEOCULARIS.

bright purple of the breast and changing to greenish ashy. Scapulars and wing-coverts brown, with distinct purple margins. Quills, rectrices, and upper tail-coverts ashy-brown, paler on under surface. In the example sent only twelve rectrices are to be detected. The colouring of the plumage is so iridescent that it is difficult to describe accurately.

Wing 8·50; tail 6·75; bill from forehead 0·81, from gape 1·13; hallux 0·62; tarsus 1·12. Feet red; bill red at base and yellow at the tip. Shot on the Island of Guimaras.

BUTORIDES JAVANICA (Horsf.): Tr. Linn. Soc. xiii. p. 190. "Java."

Island of Negros. Example sent is smaller in all its dimensions than individuals from Ceylon and North West India. Wing 6·50, bill from forehead 2·38.

GLAREOLA ORIENTALIS, Leach, Tr. Linn. Soc. xiii. p. 132, pl. xiii. figs. 1 and 2. "Java" (May 2, 1820).

" ♀, iris brown; bill and legs black; stomach, small worms. March."

In full adult summer plumage.

SQUATAROLA HELVETICA (Linn.): S. N. i. p. 250, no. 12.

" ♀, iris brown; bill black, legs green; stomach, shrimps and sea-worms. March."

CHARADRIUS FULVUS, Gm. S. N. i. 687. no. 18.

" ♀, iris brown; bill black, feet green; stomach, shrimps and sea-worms. March."

In winter plumage, showing no trace of a change to the breeding-dress.

The following notes relate to the eggs in Mr. Layard's collection.

RHIPIDURA NIGRITORQUIS, Vigors?

The nest and eggs of a Fly-catcher are sent, which is described as being " brown above, with a white throat and breast with a darker collar between. A white bar extends across the end of a broad tail, which it flirts about, constantly opening and shutting it. Two weeks ago [writing February 20th] whilst swimming in the river, I caught sight of its nest in a prickly bamboo-clump. It was built in a fork almost over the water, and is exactly like that of *Tchitrea cristata*, of the Cape of Good Hope. If I had not found that at the Cape, I should never have remarked this. Last Sunday there were two eggs in it exactly like a Fiscal's (*Lanius collaris*), only smaller of course. I cut out and brought home nest and eggs."

The nest sent home is a very beautiful structure, composed of fine fibres, roots, and hairs, most artistically constructed on a lateral bamboo shoot, at the junction of two other smaller branchlets. It is very closely woven, and so densely covered on the outside with cobwebs as to be almost impervious to light. It has no lining, and is perfectly round and cup-shaped inside, having a diameter of 2¾ inches, with a depth of 1¼ inch; thickness of walls ¼ inch. The base is prolonged into a funnel-shaped cone, the pipe being composed of coarse bents of dry grass loosely hanging together. Its resemblance to the nests fabricated by all the *Tchitreæ* is apparent.

The eggs are of a pale creamy-grey colour, marked (in the form of a ring) at the obtuse end with close-set, often coalescing, small, faint purplish and brown spots; some of these are faintly visible over the rest of the shell. Axis 9‴, diam. 6½‴.

Munia jagori, Cab.?

"Eggs of a little Amadavat, with red body and black head." These are probably the eggs of the little *Munia jagori*, which accords with this description. They are pure white. Axis 7‴, diam. 5‴.

Corydalla malayana (Eyton)?

"Two sets of Larks' eggs." These are unaccompanied by any description; they may be those of *C. malayana*, or of an undescribed species. They evidently belong to the same bird, though two are somewhat darker than the other three. They are of a pale-grey ground, profusely speckled (chiefly at the obtuse end, and in some in the form of a ring) with minute brown and purplish specks. Axis 10‴, diam. 8‴.

Excalfactoria chinensis (Linn.)?

A single "egg of a Quail" we suppose to belong to this species. Mr. L. Layard describes the bird as not uncommon. The egg is of a darkish brown generally, but irregularly speckled and blotched with very dark madder-brown specks and blotches of various sizes. Axis 12‴, diam. 9‴.

TURNIX OCELLATA (Scop.) ?

A second Quail's egg is sent, which from our knowledge of eggs of birds of this genus, we fully believe to belong to this species.

It is of a dirty pale-brown ground, profusely spotted with black and dark-brown speckles, chiefly at the obtuse end. The small end is rather acutely pointed. Axis 12‴, diam. 8‴.

XIII.—*Descriptions of Six new Species of Indian Birds.*

By ALLAN HUME, C.B.

1. CHRYSOMITRIS THIBETANA.

Dimensions.—Length 4″·75, wing 2″·70, tail 1″·9, tarsus 0″·4, bill at front 0″·35.

Description (only female obtained).—Legs and feet brown; bill brown, fleshy on lower mandible. *Plumage*: Head, neck, back, and scapulars dingy olive-green, each feather with a dark brown central stripe; a long supercilium, continued backwards round the ear-coverts, and an ill-defined patch on the nape greenish yellow; ear-coverts brownish olive; lower parts pale yellow, albescent on the middle of the abdomen and towards the vent; the sides and flanks with dusky central streaks; lower tail-coverts pale yellow, each feather with a linear lanceolate blackish brown central streak; rump and upper tail-coverts greenish yellow, with traces of central dusky streaks; quills and tail blackish brown, edged exteriorly with greenish yellow; the primaries very narrowly margined at the tips, and the tail-feathers on the inner webs with greyish white.

This is a true Siskin, agreeing perfectly in shape of bill with the European *C. spinus*, which our Indian *C. spinoides* does not.

The specimen described was obtained by L. Mandelli, Esq., on the borders of Sikkim and Thibet. It appears to me to be distinct from the European bird; but I have not a sufficient series of the latter to be absolutely certain of this point.

2. DUMETICOLA CYANOCARPA.

Dimensions.—Length 7″, wing 2″·85, tail 3″·4, tarsus 1″·15 bill at front 0″·45.

Description.—Bill, legs, and feet brown, the former dusky on the upper mandible. *Plumage*: The whole upper surface a very rich olive-brown, more or less tinged with ruddy, especially on the rump and upper tail-coverts; the tail-feathers a somewhat rufous brown, slightly more rufous at the margins; quills hair-brown, margined exteriorly with a ruddy olivaceous tinge; median and larger coverts olivaceous; lesser coverts and carpal joint of the wing more or less pure cyaneous; lower parts, including wing-lining, a sort of fulvous buff, shaded with dusky olive on the sides of the neck and throat and on the sides and flanks; centre of abdomen and vent nearly pure white; lower tail-coverts fulvous, mingled with olive-brown; lores and chin, and an indistinct supercilium, dull fulvous.

Although a considerably larger bird than any of the other known species, this is unquestionably structurally a true *Dumeticola,* corresponding in shape of wing, tail, bill, and feet with *Dumeticola affinis,* with a large series of which Mr. Brooks and I carefully compared it. The dull blue patch on the carpal joint would naturally awaken the suspicion that it was a female *Myiomela* or *Brachypteryx*; but it is unquestionably a *Dumeticola.* It was obtained in one of the low valleys in the interior of Sikkim by one of the Shikarees employed for me by Capt. Masson.

3. HORORNIS ERYTHROGENYS.

Dimensions.—Length 5″, wing 2″·25, tail 2″, tarsus 0″·68, mid toe and claw 0″·7, bill at front 0·″42.

Description.—Bill brown above, fleshy at gape and base of lower mandible; legs and feet pale fleshy, dusky at joints. *Plumage*: The whole upper surface, including wings and tail, a rich rufescent brown; lores, cheeks, ear-coverts, and a narrow line over the eye rich chestnut rufous; centre of chin and throat and centre of abdomen nearly pure white; sides of neck and breast dull rufescent; sides of abdomen and flanks rufescent brown; wing-lining rufescent white.

This is a typical *Horornis,* if I rightly apprehend Mr. Hodgson's genus. The specimen was shot by Mr. William Masson on the 20th of May, 1870, below Darjeeling. It is very distinct from any species of *Horornis* or *Horeites* described by Messrs. Blyth, Hodgson, and Jerdon.

4. HOREITES BRUNNESCENS.

Dimensions.—Length 4″·25, wing 2″·2, tail 2″, tarsus 0″·82, bill at front 0″·33.

Description.—Legs, feet, and bill pale brown, the latter darker on the upper mandible. *Plumage*: The whole upper surface, including the wing-coverts and the greater portion of the exterior webs of the quills, olivaceous, tinged with rufous more strongly on the head, and most conspicuously so on the exterior margins of the quills; the rest of the quills hair-brown; the tail pale brown, obsoletely barred and slightly tinged at the margin with rufous; a dull white stripe from the nostrils, over the eyes and ear-coverts; a dusky stripe under this latter through the lores, eyes, and ear coverts; lower surface pale dingy fulvous, more albescent on the throat and wing-lining.

This specimen I picked out of a collection made in the neighbourhood of Darjeeling by Mr. Gammie, of the Government chinchona plantation.

5. SIPHIA MINUTA.

Dimensions.—Length 4″, wing 2″·2, tail 1″·77, tarsus 0″·7, mid toe and claw 0″·56, hind toe and claw 0″·5, bill at front 0″·25.

Description.—Bill blackish brown, fleshy on lower surface of lower mandible; legs and feet very pale fleshy brown. *Plumage*: Upper surface a very rich olive-brown, slightly tinged with rufous on the back, more conspicuously so on the rump; tail dull rufous; quills hair-brown, narrowly margined with dull rufous; chin, upper part of throat, wing-lining, flanks, and lower tail-coverts pure pale buff; lower portion of throat, and lower portion of abdomen and vent, white; sides of neck, breast, and upper abdomen pale dingy brownish fulvous.

This species closely resembles both *Siphia tricolor* and the female of *Siphia leucomelanura*, but is decidedly distinct from either. It has no white about the tail, and differs from all the *Siphiæ* and *Erythrosternæ* which I possess, as well as from *Anthipes moniliger*. The specimen was shot by Mr. William Masson on Mount Tongloo, in Sikkim.

6. DRYMŒPUS RUFESCENS.

Dimensions, male.—Length 7″·12, expanse 7″, tail from vent 3″·38; wing 2″·62, when closed reaches to within 2″·5 of end of tail; feet, greatest length 1″·38; tarsus 0″·95; bill at front 0″·5.

Another male.—Length 6″·75, expanse 7″·6, tail from vent 3″·55, wings when closed reach to within 3″ of end of tail.

Another male.—Length 6″·4, expanse 7″·6, wings when closed reach to within 2″·45 of end of tail.

Female.—Length 6″·1, expanse 6″·75, tail from vent 2″·6, wings when closed reach to within 2″ of end of tail.

Description.—Legs and feet fleshy, or light fleshy brown; claws dusky; irides brown, light brown, brownish orange, and deep yellow; bill blackish or dusky horny, fleshy or greyish at base of lower mandible. *Plumage*: Whole upper surface, including tail and greater and median coverts, tertiaries, and outer webs of primaries and secondaries, rich rufous brown in full plumage, grey-brown more or less tinged or overlaid with rufous in young birds; tail very distinctly and finely but obsoletely barred, all the feathers except the central ones narrowly tipped with fulvous white, with a more or less distinct penultimate dusky bar; the young birds with a good deal of white on the inner webs of the lateral feathers, which is entirely wanting in adults; lores and a stripe over the eye fulvous white; ear-coverts, sides of neck and breast, and some of the lesser wing-coverts about the carpal joints a greyish brown, the ear-coverts more or less mottled with fulvous white; lower parts pale fulvous, albescent on the chin and throat and middle of abdomen, tinged on the breast with grey, more purely buff on lower tail-coverts and wing-lining, and more rufescent on tibial plumes; inner webs of primaries and secondaries hair-brown. The young birds are much paler and more albescent on the lower surface.

This is a very distinct species, widely spread over the country. I have it from Mount Aboo, Gurhwal, and Kamoah, collected by Dr. King; from Niher, Mahableshwur, collected by the Rev. H. Bruce; from Naipoor, collected by F. R. Blewitt, Esq.; from Etawah, collected by myself; and Mr. Brooks tells me he has it from two or three other localities. The birds vary very much in size, the young being considerably smaller than the adults, and the females being always much smaller than the males. Some quite young birds entirely lack the rufescent tinge which is so characteristic of this species, and which, in the newly moulted adult, approaches that of *Pyctorhis sinensis.* The plumage fades much by exposure; and adults just previously to moulting are met with of a dull rufous grey.

I may add that when recently staying with me, Mr. Brooks went very carefully over all these species, comparing them with nearly allied forms. He agrees with me both as to their novelty and in assigning them to the genera under which I have placed them.

XIV.—*Descriptions of Two Genera of* Paradiseidæ, *with remarks on some of the Species.* By D. G. Elliot, F.L.S., F.Z.S., &c.

The species commonly placed by authors in the genus *Sericulus,* and known to ornithologists as *S. aureus,* presents so many characters not found in the Regent Bird, that it has seemed to me necessary to acknowledge the generic name *Xanthomelus* proposed for it by Bonaparte (Ann. d. Sc. Nat. ser. iv. Zool. 1854, p. 122; C. R. xxxviii. 1854, p. 538), and to separate it entirely from the species with which it has generally been united. That *Sericulus* has not been deemed the proper genus for this bird is evident by the way it has been removed by different authors from one genus to another. Thus Linnæus considered it an Oriole, and placed it in his genus *Oriolus.* Many authors have given it a position in *Paradisea* among the typical Birds of

Paradise; and Shaw included it in *Lophorina*; while the majority of writers retained it in *Sericulus.*

The genus XANTHOMELUS may be defined as follows:—

Bill—culmen straight at base, curving rapidly towards the tip; upper mandible broad at base, nostrils open and exposed, feathers of forehead touching their posterior rim; cutting-edges of lower mandible curving slightly downwards; the tips of both upper and lower toothed. Head crested; plumes of the back greatly lengthened, capable of being elevated. The wings of the specimen before me are not quite complete; but apparently the first and second of the secondaries are equal and longest. The tail is rounded, while that of *Sericulus* is slightly forked. Feathers loose and soft, only those around the base of the upper mandible being short and velvety like those of the head of *Sericulus.*

The only known species is

XANTHOMELUS AUREUS.

Golden Bird of Paradise, Lath. Gen. Syn. (1782) vol. ii. p. 483.

Oriolus aureus, Linn. Syst. Nat. (1766) vol. i. p. 163. sp. 19; Vieill. Ency. Méth. (1823) vol. ii. p. 695. no. 5; Gray, Hand-l. Birds (1869), pt. i. p. 293. sp. 4332.

Paradisea aurea, Lath. Ind. Orn. (1790) vol. ii. p. 195, sp. 11.

Lophorina aurantia, Shaw, Gen. Zool. (1826) vol. xiv. p. 76.

Sericulus aurantiacus, Less. Ois. Parad. (1835) p. 201, pl. 25, 25 *bis,* 25 *ter.*

Sericulus aureus, Bon. Consp. Av. (1850) p. 349. sp. 1.

Xanthomelus aureus, Bp., *ut suprà*; Gray, Hand-l. pt. i. p. 293.

Hab. New Guinea.

In a paper lately published in the 'Tijdschr. v. de Dierkunde,' Prof. Schlegel described a bird from New Guinea as *Sericulus xanthogaster*: I have by his permission been able to bring the specimen (together with one of the bird next described) to London, and have carefully examined them. The former does not belong to *Sericulus* (represented, as now restricted, by *S. melinus*)—which has the head covered with short upright feathers like those of the typical bird of Paradise, but destitute of crest.

The present bird has its closest affinity to the *Chlamydodera cerviniventris* of Gould, and should be included in that genus. According to Prof. Schlegel the sexes of this species are alike, which is also the case with those of the *C. cervineiventris*. The specimens appear to be fully adult; and their sex was ascertained by dissection by Von Rosenberg, who procured them in the interior of New Guinea. Like the majority of the Bower-birds, *C. xanthogastra* is rather plain-looking, being brown above and bright yellow beneath, destitute even of any nuchal band of bright colours, which some species of the genus possess—resembling in this fact, however, *C. cerviniventris*. The acquisition of a second species of this group of birds is very interesting; and doubtless, when the unknown wilds of the great island of New Guinea become accessible to scientific explorers, other and more extraordinary new forms will be discovered. The species will therefore be known as

CHLAMYDODERA XANTHOGASTRA.

Sericulus xanthogaster, Schleg. Tijdsch. v. d. Dierk. iv. p. 50 (1871).

Hab. New Guinea.

The other species to which I referred above as having been described by Prof. Schlegel in the same paper, was placed by him in the genus *Ptilonorhynchus*, and named *P. inornatus*. It, however, differs greatly from the *P. violaceus* (*holosericeus* auct.), the only species now representing that genus, in wanting the feathers projecting over the bill and hiding the nostril (one of the principal characters of *Ptilonorhynchus*), and also in having a very different structure of feather. The sexes, according to Von Rosenberg, are the same in the colour of their plumage, while those of *P. violaceus* are widely different. I have therefore regarded it as representing a new generic form, which I propose to call

AMBLYORNIS,

with the following characters—

Bill short, thick, culmen much curved, gonys nearly straight; nostrils partly hidden by the feathers of the forehead, which are soft and flexible. A few short bristles project forwards over the culmen and nostrils, which last are round, open, and partly exposed. Wings moderate, fourth primary longest. Tail very slightly rounded, composed of ten feathers. Toes slender, middle one nearly as long as the tarsus, outer longer than the inner one.

The only species known is

AMBLYORNIS INORNATA.

Ptilonorhynchus inornatus, Schleg. Tijdsch. v. d. Dierk. pt. v. p. 51 (1871).

Head and upper part of back rufous brown; rest of upper parts dark brown. Wings rufous brown; primaries dark brown. Entire underparts dark buff. Tail dark brown. Bill, feet, and tarsi black. The specimen is marked as a male; but it may possibly be one in immature dress, and the full-plumaged male may have a very different appearance from the one described in this paper; but that fact the acquisition of additional specimens in all stages can alone determine.

Hab. Interior of New Guinea.

XV.—*Supplementary Notes to 'The Birds of India.'* By T. C. JERDON, F.L.S., F.Z.S., Retired Deputy Inspector-General of Hospitals, Madras.

[Continued from p. 22.]

(Plate VII.)

256. LANIUS LAHTORA.

This Shrike is now known to extend to Eastern Africa, *L. pallens* of Cassin, and *L. dealbatus*, De Fil., being considered synonyms.

257. LANIUS ERYTHRONOTUS.

Mr. Blyth, in his commentary, appears to have accepted my joining his *L. caniceps* with *L. erythronotus*; but Hume and others still consider them distinct; and I am now inclined to agree with them, and place it as another species:—

257 *bis*. LANIUS CANICEPS, Blyth.

Besides the distinctions pointed out in the text, Hume states that in this bird the middle of the abdomen, right down to the vent, is white, while in *L. erythronotus* the lower portion of the abdomen, and the feathers above the vent, are bright ferruginous.

259. LANIUS NIGRICEPS.

Figured by Gray, Gen. Birds, pl. 71.

It appears to be yet doubtful, from Lord Walden's observations (Ibis, 1868, p. 70), whether this bird be the same as Sonnerat's from the Philippines, and therefore whether the synonym of *antiguanus* should be added or not. To the Philippine bird belong the synonyms of *L. nasutus*, Scopoli, and *L. cephalomelas*, Bonap.

Another Shrike from China is *L. fuscatus*, Lesson (*L. lugubris*, Temm. apud Hartlaub; *L. melanthes*, Swinhoe).

260. LANIUS HARDWICKII. This bird will now stand as LANIUS VITTATUS, Valenc.

The Rufous-tailed Shrikes have been the subject of an excellent memoir by Viscount Walden (Ibis 1867, p. 211). The group has been named *Otomela* by Bonaparte: all the species have the tail rufous, and no white on the wings.

261. LANIUS CRISTATUS, L.

This is the species common in most parts of India; but the synonym of *phœnicurus* must be withdrawn from it; and the habitat of the Andamans, Ceylon, and Java for *L. lucionensis* is most likely erroneous. One measured when recently killed $7\frac{3}{4}$ inches in length, wing $3\frac{3}{4}$, extent $10\frac{1}{2}$, tail $3\frac{1}{2}$.

262. LANIUS ARENARIUS.

In my Appendix (p. 875, of 3rd vol.) I gave this as a doubtful species; but on my first visit to the Upper Provinces I found that it was by no means a doubtful, but a well-marked species. I found it throughout the upper part of the N.W. Provinces and the Punjab, to the exclusion of *L. cristatus*. One I killed at Roorkee measured $7\frac{1}{2}$ inches in length, wing $3\frac{4}{10}$, extent 11, tail $3\frac{1}{4}$; another had the tail $3\frac{1}{2}$. The central tail-feathers have a pale band near the tip; and all the rectrices are broader than in *L. cristatus*. It is only a cold-weather visitant to India;

but Stoliczka found it in Thibet in summer, and also, though rarely, in the Sutlej valley.

262 *bis*. LANIUS ISABELLINUS, Hemprich and Ehrenberg. Walden, Ibis, 1867, p. 224, pl. v. f. 1. The White-winged Brown Shrike.

This addition to the Indian fauna is a link between the Rufous-tailed and the true Shrikes. It has hitherto, in India, only occurred in Sindh, but will most probably be found to extend into the neighbouring parts of the Punjab. I append a brief description. Head and rump rufous brown, the rest of the upper plumage brown, with a slightly rufous tinge; upper tail-coverts and tail bright rufous; below, including the under wing-coverts, creamy white; under tail-coverts, pure white; a pale fulvous supercilium, and a black eye-band, which includes the eyes and ear-coverts; a white alar bar on the 3rd to 9th quills. Of about the size of *L. arenarius*. Wing 3·87, tail 3·62, tarsus ·87.

Lanius tigrinus, Blyth, alluded to by me p. 407, stands now as *L. magnirostris*, Lesson—*L. strigatus*, Eyton, and *L. waldeni*, Swinhoe, being synonymous. *L. schwaneri*, from Borneo, is very doubtfully distinct.

266. TEPHRODORNIS GRISOLA.

This bird is stated by Blyth to be identical with *Hyloterpe philomela* of Boié *apud* Cabanis, and to belong to the genus *Pachycephala* as understood by Wallace and Sclater. *Tephrodornis gularis*, alluded to in the text, does not, it appears, inhabit Malacca, where it is replaced by another species, *T. sordidus*, Wallace.

267. HEMIPUS PICATUS.

I was wrong in confounding the species from Southern India named as above with the Himalayan bird. This last will now take its place as

267 *bis*. HEMIPUS CAPITALIS, M'Clelland.
H. picæcolor, Hodgson.
The Brown-backed Pied Shrike.

Dimensions of a Darjeeling specimen:—Length 5¾ inches, wing 2½, extent 8.

The Himalayan bird is distinctly larger, has a somewhat longer tail, and the back is always sooty-brown in place of the glossy black of the Neelgherry bird. The nest of the Himalayan bird has been noted as made of the hair of horses, cows, or goats; and the eggs, four in number, as being pale sea-green, spotted with rufous brown, and with an indistinct ring.

At page 414, 4th line from the top, after "Bonaparte," add "to belong."

270. GRAUCALUS MACEI.

This is only found in Northern India. The Southern race will stand now as

270 *bis*. GRAUCALUS LAYARDI, Blyth, olim *G. pusillus*, Bl.

The Lesser Cuckoo-Shrike.

This differs from its northern congener in its smaller size, in the lower wing-coverts being strongly barred, in the abdominal bars being fewer and broader, and not present in the fully adult male, and in the outer tail-feathers being only slightly tipped with white. Wing 6 inches, tail 4, these parts in the northern bird being respectively 7 and 5¼. This species is found in Southern India and Ceylon; but I have no information how far it extends through Central India.

Blyth notices that the Malayan *G. javensis* resembles *G. layardi* in size, but *G. macei* in colour. A Ceylon specimen in Lord Walden's collection has the wing only 5¾ inches, and the bill smaller than in specimens from Southern India.

271. PERICROCOTUS SPECIOSUS.

Figured by Gould, B. Asia, pt. ix. pl. 3.

272. PERICROCOTUS FLAMMEUS.

Figured by Gould, B. Asia, pt. ix. pl. 4.

I have seen an Assam specimen that I could not distinguish from those of Southern India; and Blyth also says, "Specimens from Assam do not appear to differ from *flammeus*;" so we may add *P. elegans*, M'Clelland, to the synonyms of this species.

The *P. flammeus* of Adams, from the N. W. Himalayas, is most probably *P. speciosus*.

273. PERICROCOTUS BREVIROSTRIS.

In the early part of winter I saw, in Kumaon, large flocks of this bird, 30 to 40 or more, flying about across the valleys; and it was a very beautiful sight to witness the rich colour glowing in the bright sunshine, and showing more particularly when they turned in their flight.

274. PERICROCOTUS SOLARIS.

In my description of the female, the punctuation has been sadly marred. In the place of " Head, dark-ashy black, tinged olive-green beneath, wing-spots, &c.", read, " Head dark ashy; back tinged olive-green; beneath, wing-spots, &c." The bill, moreover, is given as 3 instead of $\frac{3}{8}$, and tarsus as 4 instead of $\frac{4}{8}$. I omit to notice the extension of this bird to Assam, the Khasia hills, &c.

It is figured by Gould, B. Asia, pt. i. pl. 4.

275. PERICROCOTUS ROSEUS.

Figured by Gould, B. of Asia, pt. ix. pl. 6.

This species extends to the Lower Himalayas as far west as Mussooree, and is not rare in some parts of the Dehra Doon.

276. PERICROCOTUS PEREGRINUS.

Figured by Gould, B. Asia, pt. ix. pl. 5. Blyth states that it appears to grade into *P. flagrans* in the course of its extension in Burmah southwards towards Malacca.

277. PERICROCOTUS ERYTHROPYGIUS.

Figured by Gould, B. Asia, pt. i. pl. 5.

Blanford procured this species in Nagpore, but is mistaken in saying that it had not previously been observed so far south, as I state that I had procured it as far south as the foot of the Neelgherries.

278. DICRURUS MACROCERCUS.

As Vieillot's name was applied to a Malayan bird distinct from our Indian one, this must now stand under Hodgson's name of BUCHANGA ALBIRICTUS. Specimens from Southern

India are decidedly smaller than those from the North, with shorter wings, and generally shorter tail. Those from Ceylon are perhaps still smaller, and Blyth has named them *D. minor.* If, however, it be considered desirable to recognize the smaller race as distinct, it must stand as *Buchanga atra,* specimens from Tranquebar having been thus named by Hermann; these specimens, I believe, always have the white rictal spot: the Malayan *D. macrocercus* resembles this race in size, but wants the rictal mark.

278 *bis.* DICRURUS LONGUS.

Birds of India, Appendix, p. 871.

This bird chiefly differs from *D. albirictus* in wanting the white rictal spot, and has usually, I think, a longer tail. It appears to replace that species in many parts of Lower Bengal, and even in Behar, and occurs throughout Assam and all the districts east of the Burrampootra, nearly though not entirely to the exclusion of *D. albirictus.* The Malayan *D. longus* is the same as *D. macrocercus,* V., and therefore quite distinct from our bird; and it becomes a question what name ours ought to bear. Mr. Swinhoe has recently described a Chinese *Dicrurus* as *D. cathœcus.* He asserts that the Chinese bird differs from its Indian ally in being still larger, with longer bill, and much longer wing, and has a rich bronze gloss over its feathers, including its wings and tail. Length of wing 6 inches, tail 6. As to its longer wing, I must dissent entirely; and if Mr. Swinhoe had looked at my measurements of *D. longus, l.c.,* from Dacca, he would have seen that they quite equalled those of his Chinese bird; and I have killed one with the tail 7 inches in length. As I see no other essential distinction, I shall, for the present, distinguish the Indian King-crow without a white rictal spot as BUCHANGA CATHŒCUS, Swinhoe. As many specimens from different localities in Northern India have the rictal spot greatly reduced in size, and some, indeed, have it barely perceptible, it is probable that the two races pass one into the other, like the allied species of *Coracias* and *Treron.*

279. DICRURUS BALICASSIUS.

The Himalayan bird is distinct from the Malayan species, to which the name *balicassius* was applied, and it will therefore retain Hodgson's name of BUCHANGA ANNECTANS.

280. DICRURUS LONGICAUDATUS.

It has been asserted that the Himalayan bird generally referred to under this name is distinct from the bird of Southern India; and the late Mr. Beavan named it *D. waldeni*, with which the *D. himalayanus* of Tytler is stated to be identical*. I have recently compared specimens from the Himalayas with others from Southern India, and have been unable to detect any appreciable difference. Hodgson's name of *pyrrhops* is given as a synonym of this bird by Gray and Blyth; and I followed them. This so far appears to be correct, that one drawing of this species in Hodgson's collection is named by him *D. pyrrhops*; but there is another, decidedly distinct bird figured by Hodgson under the same name, which will therefore stand as

280 *bis*. BUCHANGA PYRRHOPS, Hodgson. The Grey Long-tailed Drongo.

Vicount Walden first discriminated this species. It somewhat resembles in coloration *D. cineraceus*, Horsfield, being of a moderately dark shade of grey, with a distinct metallic shine; and the tail-feathers always show the ashy grey tinge in a marked manner when compared with specimens of *D. longicaudatus*. The dimensions of one killed at Dacca were as follows:—Length 11 inches, wing 5½, extent 16¼, tail 5¾.

I am not certain now whether I ever procured this at Darjeeling (having confounded it with *D. longicaudatus*); but the specimen I got at Dacca I looked upon as a pale individual of that species, and it was not till Lord Walden had pointed out its distinctions and showed me a similar specimen from the Himalayas that I fully recognized its claim to specific separation. I found it by no means rare in Dacca, in groves and at the edges of jungle, with a strong and rapid flight, quite similar to that of *D. longicaudatus*, capturing insects in the air at a considerable distance from its perch. I have little doubt that it will be found to extend southwards through Chittagong to Arrakan; and it was probably seeing specimens of this race that caused Blyth to remark that *Dicrurus cineraceus*, Horsfield, in advancing northwards from the Malayan peninsula, appears to grade into *D. longicaudatus*.

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* Ibis, 1868, p. 200. Those who consider it distinct may adopt Tytler's name; for Beavan's appellation had been forestalled by Schlegel for a Madagascar *Dicrurus*.

I may here remark that Lord Walden considers Blyth's *D. intermedius*, placed as a synonym of *D. longicaudatus*, to be a distinct race, from Burmah.

283. Bhringa remifer.

One measured in the flesh was 10½ inches to the end of the central tail-feathers, extent 17, wing 5½. From later observations I am now somewhat doubtful of the lengthened outer rectrices being a seasonal distinction, as I found the young feathers growing in a specimen shot in October. I have recently compared Javan examples with some from Darjeeling, and can find no appreciable difference, except a slightly stouter bill, which might be individual.

284. Edolius paradiseus.

This group is now classed under *Dissemurus*. Blyth states that it is doubtful if the long-crested bird is found anywhere except in the Subhimalayan region. The Goomsoor bird, and those from the Eastern Ghats, certainly appear to me to be the same, as also those from Assam.

285. Edolius malabaricus.

Gray* has recently named a bird of this group from Malabar *Edolius singularis*. The type specimens of this bird want the crest; but they are young birds, and I think, moreover, that they are imperfect as regards the frontal feathers. The narrow part of the lengthened rectrices (which in these specimens is very short) has a distinct though very minute web on each side of the shaft. This may either be a mark of nonage in these particular examples, or, more probably (as Lord Walden reminds me), of the process of change which is occasionally found, more or less, in most of the species of this group, and even in *E. lophorinus* of Ceylon. Viscount Walden has in his

* Hand-list, vol. i. p. 287, descr. nulla!

possession specimens from Malabar with the crest well developed, and with the narrowed portion of the outer tail-feathers having the shaft denuded of web. I have very little doubt that Gray's bird is the same as my *E. malabaricus,* and that it was probably from a somewhat similar specimen to those in the British Museum that Sonnerat figured his Grand Gobemouche de la côte de Malabar.

288. TCHITREA PARADISEA.

Stoliczka states that he found this Flycatcher up to a height of 9000 feet in the N.W. Himalayas. I have not seen it higher than about 5000. The nest and eggs have been described by Messrs. Hume and Brooks, and also by Blyth, from Hodgson's drawings. The nest is deep cup-shaped, made of fine grass and moss with cobwebs outside. The eggs, usually four in number, are buffy white, with red specks and spots.

290. MYIAGRA AZUREA.

It is, I think, exceedingly doubtful if Beavan's *M. tytleri,* from the Andamans, be distinct, this species having a very extended geographical distribution. Blyth has known a bird of this species take up its residence in a veranda and prey on house-flies and mosquitoes.

291. LEUCOCERCA FUSCOVENTRIS.

This must now stand as *L. albicollis,* Vieillot. Dr. Pucheran having examined the types of certain species in the Paris Museum, published the result in the 'Archives du Muséum.' He has there determined the priority of many of Vieillot's and Cuvier's names to those given subsequently. The four outermost tail-feathers are broadly tipped with white, and the next narrowly so. The nest and eggs are described and figured in Jardine's 'Contributions to Ornithology.'

292. LEUCOCERCA ALBOFRONTATA.

This is *L. aureola* (Vieillot). Blanford found it as far east as Chanda; and Dr. King has it also in his list of birds from Goona. Hume describes the nest a very delicate, small, tumbler-like affair, of fine grass coated with cobwebs; the eggs, three in number, white, with minute yellowish-brown specks, and few spots of a pale inky hue.

293. LEUCOCERCA PECTORALIS.

This must stand as *L. leucogaster*, Cuvier. It is, as I suspected, Sykes and Adams's *Rhipidura fuscoventris* (vel *albicollis*), which does not extend to the west of India. Blanford has lately found this species as far east as Chanda.

294. CHELIDORHYNX HYPOXANTHA.

One measured in the flesh $4\frac{3}{4}$ inches, extent $6\frac{1}{2}$, wing $2\frac{1}{4}$, tail $2\frac{3}{8}$. Bill black above, yellow at the base below. The nest and eggs are figured in one of Hodgson's drawings—the latter white, faintly speckled. I am not aware of having anywhere expressed my opinion of the rarity of this bird, as Mr. Hume asserts I have. It is certainly quite common at Darjeeling.

295. CRYPTOLOPHA CINEREO-CAPILLA.

Swainson's genus *Cryptolopha* having been founded on his *C. auricapilla* = *Culicipeta burkii*, this group of Flycatchers must be referred to another genus, which Mr. Swinhoe names *Culicicapa**; but if Mr. Gray is correct, this term must give place to *Myialestes*, Cabanis. It has been found recently in China. One measured in the flesh 5 inches in length, extent 8, wing $2\frac{1}{2}$, tail $2\frac{1}{4}$, foot $\frac{13}{16}$.

296. HEMICHELIDON FULIGINOSA.

One killed in Kashmir measured in the flesh $4\frac{3}{4}$ inches in length, extent 9, wing $2\frac{7}{8}$, tail 2, foot $\frac{13}{16}$. The eyelids and lores are whitish, and the chin and throat are also white, rather than "slightly albescent," with indications of pale mesial stripes, and a streak from the lower mandible. Two thirds and more of the inner webs of all the quills rufescent at the margin, showing conspicuously when in flight. The under wing-coverts also are somewhat rufescent. Stoliczka says that the female is somewhat larger than the male, somewhat rufescent on the chin, and with the tertiaries and larger wing-coverts also tipped with rufescent. He states that he found it more common in the eastward than towards the more western parts of the Himalayas; but I nowhere found it more abundant than in high valleys in Kashmir, where, like Stoliczka, I saw it chiefly near the tops of high trees, not on the lower branches as I occasionally observed near Darjeeling. Hodgson figured the egg as pale greenish with rufous specks. The birds obtained near Barrackpore by Tytler, alluded to by Blyth in his Commentary, were more probably, I think, *Alseonax terricolor*. I see that Swinhoe, in his last Catalogue of the Birds of China, puts Hodgson's bird as a synonym of *Muscicapa sibirica*, Gmelin, and *M. fuscedula*, Pallas, as suggested by myself.

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* P. Z. S, 1871, p. 381.

297. ALSEONAX LATIROSTRIS.

Blanford notices that he cannot see the smallest difference between specimens of this bird and one sent from Amoy by Swinhoe as *Muscicapa cinereo-alba*, Temm. & Schl.; and I see that Swinhoe now adopts this view. I had previously considered it to be more like *Alseonax terricolor*.

299. ALSEONAX FERRUGINEUS.

Hemichelidon rufilata, Swinhoe.

The nest and eggs of this Flycatcher are depicted in one of Hodgson's drawings, the eggs pure buff colour, unspotted.

Butalis griseo-sticta, Swinhoe (*B. hypogrammica*, Gray and Wallace) is another species of this group, spreading from China in summer to the Moluccas in winter.

301. EUMYIAS MELANOPS.

Expanse of wing about 10 inches. Hodgson figures the egg as unspotted pinkish white; Captain Bulger describes the eggs as pale greenish blue, much spotted and blotched with brown; and Mr. Brooks as fleshy white, clouded and mottled with pale reddish brown at the large end, which is very like my account of them. Lord Walden has recently described a nearly allied bird from Ceylon as *E. sordida* (perhaps *ceylonensis**, Gray); and Gray has given the name of *E. spilonota** to what is most probably the young bird from the Himalayas.

303. CYORNIS UNICOLOR†.

I obtained a single specimen of this rare bird at Darjeeling in

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* [These names are given in the Hand-list, p. 326, to supposed new species, but are unaccompanied by descriptions.—ED.]

† Blyth states that, both from recollection of the bird and my descrip-

1869—but did not notice it when fresh, from its close resemblance to *Eumyias melanops*.

304. CYORNIS RUBECULOIDES.

Blyth notices that this bird is very near to *C. elegans,* Temm. Pl. Col. 596. 1, and suggests their identity. A specimen from Tayboo (Burmah), and another from Ceylon, both in Lord Walden's collection, differ from *C. rubeculoides* in the deep blue of the throat being divided in the centre by a somewhat converging streak of rufous.

305. CYORNIS BANYUMAS.

This will now stand as *C. jerdoni,* Gray and Blyth, having been found to differ from its Javan prototype, confirming my expressed doubts on the subject.

306. CYORNIS TICKELLIÆ.

Blanford found this Flycatcher near Nagpore; and Hume has it in abundance from Jubbulpore. It appears that the females do not differ from males. Hume has the nest also.

307. CYORNIS RUFICAUDA.

The lores and eyelids are whitish. The breast is more albescent in the female than in the male. The extent of wing of one measured in the flesh was 9¼ inches. I have long since given up the belief in my rufous-breasted Neelgherry bird being this species, and refer it to a young male *C. jerdoni,* or very old female beginning to assume a blue plumage.

308. CYORNIS MAGNIROSTRIS.

Major Godwin-Austen procured a male of this species in the North Cachar hills. It is darkish blue above, brighter over the forehead and eyes; beneath from chin to breast ferruginous, white on the belly and under tail-coverts. Irides dark brown. Legs pale fleshy. Length 6 inches, wing 3·3, tail 2½, tarsi $\frac{7}{10}$, bill at front ½.

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tion, this appears identical with *Muscicapa cyanopolia,* Boie, from Sumatra, Java, and Borneo. If this be correct, the female, which is *Muscicapa infuscata,* Müller, is rufous brown above, darker on the crown, and brighter on the tail; lower parts pure white, except the sides of the breast, which are coloured like the back.

310. Muscicapula superciliaris.

Above *dull* prussian blue, and not *full* as printed. The lores are bluish black. Stoliczka remarks that the white feathers of the lower surface are slaty at their base on the breast and abdomen.

Brooks says that the female is pale brown above, paler below. One that I procured at Darjeeling (but not in the flesh) had the head and upper part of back olive-brown, changing to pale blue on the lower back, rump, and upper tail-coverts; lores pale; chin and throat fulvous, the rest of the lower parts white, olivaceous ashy on the sides of the breast and flanks. This I at the time considered to be the female; and Stoliczka gives the same account, and says, moreover, that the old female has some blue on the head as well. This last naturalist obtained it as high as 12,000 feet on the Himalayas. I have killed it nearly as high. As to its extension through the plains in the cold season, my type specimen was procured very much further south than either Mr. Hume's or Mr. Blanford's specimens. This bird is most undoubtedly the *M. hemileucura* of Hodgson, but not the bird figured under that name in Jardine's Contributions to Ornithology, which is *Siphia leucomelanura* of Hodgson. See infrà, p. 128.

311. Muscicapula astigma*.

I have lately procured what is undoubtedly this species on the highest of the Khasia hills, Shillong Peak.

The male is prussian blue above, and on the sides of the neck and breast; chin, middle of throat and breast, and all abdominal region pure white.

The female is olivaceous above, slightly rufescent on the forehead, lores, and round the eye; the sides of the neck and breast and flanks ashy; the rest of the lower parts white, somewhat more sullied than in the male bird. Bill black; irides deep brown; legs reddish brown.

Length ♂ $4\frac{1}{2}$ inches, wing $2\frac{3}{8}$, extent $7\frac{1}{2}$, tail nearly 2, tars. $\frac{5}{8}$.

I found this species in pairs in June at the edge of the wood on Shillong Peak, and saw several couples in different parts of the wood.

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* Not *æstigma* as hitherto given.

Blyth has indicated another blue Flycatcher from Hodgson's drawings as

311 *bis*. MUSCICAPULA CILIARIS, Hodgson, *apud* Blyth.

It very closely resembles the last, having no white on the tail; the white on the throat appears to be more contracted; and there is a distinct white supercilium from the front of the eye to the nape. No particular locality is given on the plate.

The other species of blue Flycatcher, noted by Blyth, *l. c.*, as *M. leucoschista*, is founded on a bad drawing of *Erythrosterna maculata*, of which, indeed, *M. leucoschista*, Hodgson, is given as one of the synonyms.

314. NILTAVA SUNDARA.

Figured by Gould, B. Asia, pt. ii. pl. 5. I procured this bird on the Khasia hills; Godwin-Austen got it still further east; and it also extends southwards.

315. NILTAVA MACGREGORIÆ.

Figured by Gould, *l. c.*, pt. ii. pl. 6. Extent of wing 7¾ inches, tarsus $\frac{11}{16}$. The nest is figured by Hodgson in a slight hollow of a tree, and the eggs pinkish white.

316. NILTAVA GRANDIS.

Figured by Gould, *l. c.* pl. 4. A female measured in the flesh 8½, extent 12½, wing 4, tail 3½.

The *Niltava leucotis* described by Hume (Ibis, 1870, p. 144) is a made-up bird, compounded of the head of a *Parus* and the body of *Niltava sundara*. This was only made known to the readers of 'The Ibis' in October 1871, though I understand that Mr. Hume wrote himself about it more than a year ago.

Gen. *Anthipes*, p. 477.

Blyth states that *Muscicapa solitaria*, S. Müller, from Timor, appears to belong to this genus.

318. SIPHIA TRICOLOR.

Major Godwin-Austen procured at Chattuk, in the Sylhet district, specimens of a bird which I conclude to be Hodgson's species named above. It was found frequenting high grass and reeds near water. Hodgson's figure, amongst his drawings, is very much too brightly coloured.

319. SIPHIA STROPHIATA.

By a *lapsus pennæ* I have made the white of the tail increasing in extent *to* the outermost feathers, instead of *from* the outermost. Stoliczka found this bird in the N.W. Himalayas, in Rupshu, on the banks of the Indus in summer, near Simla only in winter.

320. SIPHIA LEUCOMELANURA.

This is the bird figured in Jardine's 'Contributions' as *Musc. hemileucura,* though the eyebrow is given in some of the copies as white in place of "greyish blue." It is much more common in the N.W. Himalayas than at Darjeeling, frequenting open forest at from 5000 to at least 8000 feet. One killed at Mussooree measured in the flesh $4\frac{3}{4}$ inches, extent $7\frac{1}{4}$, wing $2\frac{3}{8}$, tail $2\frac{1}{8}$, tarsus $\frac{3}{4}$, foot $1\frac{1}{4}$. Another had the wing $2\frac{1}{2}$, tail $2\frac{1}{4}$. Stoliczka describes the female, which I have not seen, as olivaceous brown above, tail ferruginous, especially at the base; chin, throat, and vent white; breast and abdomen pale olive-brown; under tail-coverts slightly ferruginous.

321. SIPHIA SUPERCILIARIS.

Muscicapa tricolor and *M. rupestris,* of S. Müller, are stated by Blyth to be respectively the male and female of this bird.

The female is ashy olive above, rufous beneath, paler on the breast and vent; superciliaries pale rufous; wings and tail pale brown, edged with pale rufous. Dimensions of one in the flesh, killed at Darjeeling, length $4\frac{5}{8}$ inches, extent $7\frac{1}{2}$, wing $2\frac{3}{8}$, tail $1\frac{3}{4}$, tarsus $\frac{3}{4}$, foot $1\frac{1}{4}$.

323. ERYTHROSTERNA LEUCURA.

The true *E. leucura* is the Eastern representative of *E. parva,* and differs in the rufous of the under plumage being confined to the chin and throat; in the next species it spreads over the breast.

One shot on the Khasia hills measured in the flesh—length $5\frac{1}{4}$ inches, extent $8\frac{3}{4}$, wing $2\frac{7}{8}$, tail $2\frac{1}{4}$, tars. $\frac{11}{16}$; bill black, legs dark reddish brown. It has hitherto only occurred in India in Bengal and the neighbouring hills.

323 *bis*. ERYTHROSTERNA PARVA.

Saxicola rubeculoides, Sykes, fide Blyth.

This European white-tailed Flycatcher occurs all through

Southern India, Central India, the N.W. Provinces, and the Punjab, to the exclusion of the last. Blanford, who obtained it near Nagpore with the red well developed in November, doubts if the male ever assumes the female plumage.

324. Erythrosterna pusilla.

The white on the throat of this bird is barely pure as I say in my description; and I have seen it with the pale tips to the wing-coverts not apparent in spring.

325. Erythrosterna acornaus.

I have also seen this species in spring without any pale wing-band as described, and with a tinge of rufous on the lores, eye-brows, and throat. Dimensions of one killed on the Haji-pir pass leading into Kashmir, in April, in the flesh were as follows:—Length $4\frac{5}{8}$ inches, extent $7\frac{1}{4}$, wing $2\frac{1}{4}$, tail $1\frac{3}{4}$, tars. $\frac{1}{2}$, foot $\frac{7}{8}$.

The legs were dingy red. In summer plumage the throat and fore neck become pale rufous, as I have seen in one or two instances, and as figured by Hodgson. The chief distinguishing mark of this Flycatcher from *E. pusilla* is the ashy-grey tinge of the lower back, rump, and upper tail-coverts. Blanford obtained this species at Seoni in Central India; and it therefore probably extends more or less, though sparingly, over peninsular India.

This naturalist states that his specimen was identical with Hodgson's type specimen but does not agree well with my description. In his description the ashy colour of the upper tail-coverts is said to spread more over the back than what I describe; but I fail to see any essential difference between my description and a specimen now before me. Mr. Hume hazards a guess that this may be the female of *E. maculata*; but the female of that bird is figured by Hodgson with the tail quite rufescent, much more resembling that of *E. pusilla*; and both species have the throat and upper breast more or less rufous in summer.

326. Erythosterna maculata.

The female is figured by Hodgson as dull slaty-brown above, white beneath, the tail rufescent, without any trace of white.

This species is stated to extend to Java, and even to Timor. I found it very abundant in Assam.

327. TESIA CASTANEO-CORONATA. Figured by Gould, B. Asia, pt. x. pl. 13.

The wings and tail are not so pure green as the back, being mixed with greyish. This bird extends to the N.W. Himalayas, and also to the Khasia hills and North Cachar.

328. TESIA CYANIVENTER. Figured by Gould, B. Asia, pt. x. pl. 12.

I omit to mention a blackish line from behind the eye along the neck, dividing the green from the ashy-grey. The female has a pale bright green supercilium, contrasting with the darker crown. The lower parts are pale slaty, with the central line somewhat albescent.

This species extends to Sylhet. One I lately measured in the flesh was $3\frac{3}{4}$ inches long, extent 6, foot $1\frac{3}{16}$.

A third species of this group exists in the *Micrura superciliaris*, Bonap., from Java.

GEN. PNOEPYGA.

Page 488, 14th line from bottom. For "this species" read "the first species," i. e. *P. squamata.*

329. PNOEPYGA SQUAMATA.

This bird is by no means rare near Mussooree and other parts of the N.W. Himalayas; and Stoliczka found it as far in the interior as Chini, in the Sutlej valley.

330. PNOEPYGA PUSILLA.

Major Godwin-Austen obtained one specimen of this rare bird. In this specimen there is a good deal of white on the lores, cheeks, chin, and throat, and the wing-coverts are distinctly spotted with white.

331. PNOEPYGA CAUDATA.

One I got at Darjeeling, in 1868, measured $4\frac{1}{8}$ inches in length; extent 6; wing $1\frac{13}{16}$; tarsus $\frac{3}{4}$; foot $1\frac{3}{8}$. Legs livid brown; claws fleshy.

332. PNOEPYGA LONGICAUDATA.

Major Godwin-Austen procured one specimen of this rare bird at Cherrapoonjee. The feathers of the head and nape only are margined with black; the wings and tail are dull rufous brown. Length $4\frac{3}{4}$ inches, wing 2, tail 2, tarsus $\frac{9}{10}$, bill (front) $\frac{6}{10}$.

Stoliczka mentions that a species somewhat allied to this occurs in Western Thibet, but of the same size as *P. squamata*. The lower plumage is yellowish white, or cinereous.

333. **TROGLODYTES NIPALENSIS.** Figured by Gould, B. Asia, pt. iv. pl. 6.

Length of one in the flesh $3\frac{5}{8}$ inches, extent $5\frac{1}{2}$, wing $1\frac{3}{4}$, tail 1, bill (front) $\frac{3}{8}$, tarsus $\frac{11}{16}$, foot $1\frac{3}{16}$. Legs pale reddish brown.

I found this Wren far more abundant in the N.W. Himalayas than in Sikkim, extending as far as Kashmir. In summer it frequents both forests and rocky hills at from 9000 to 12,000 feet.

338. **BRACHYPTERYX CRURALIS.**

One measured in the flesh $5\frac{1}{2}$ inches, extent $7\frac{1}{4}$, wing $2\frac{1}{2}$, tail $1\frac{7}{8}$, tarsus $1\frac{1}{4}$, foot $1\frac{1}{2}$. Legs livid brown. One female was somewhat larger, wing $2\frac{3}{4}$ inches, extent $8\frac{1}{2}$. The lower parts pale olivaceous, paler on the belly and vent; a short concealed white supercilium.

338 *bis*. **DRYMOCHARES STELLATUS**, Gould.

Brachypteryx (*Drymochares*) *stellatus*, Gould, P. Z. S. 1868, p. 218. Figured by Gould, B. Asia, pt. xxi.

The Chestnut-backed Shortwing.

Forehead, ear-coverts, breast, chest, and abdomen grey, crossed by numerous narrow wavy lines of black; at the tip of each of the feathers of the abdomen, flanks, under (and some few of the upper) tail-coverts an irregular arrowhead-shaped mark of white; lores black; all the upper surface, wings, and tail chestnut-red; bill black; feet brown.

Total length $4\frac{1}{2}$ inches, bill $\frac{5}{8}$, wing $2\frac{3}{4}$, tail 2, tarsi $1\frac{1}{4}$.

This very interesting bird was procured by Lieut. Eccles on the frontier of Nepal and Sikkim, at a height of about 10,000 feet. It is possible that *Brachypteryx hyperythra*, no. 337, may be the female of this bird.

339. CALLENE RUFIVENTRIS.

Blyth states that the female is brown, with the abdominal patch whitish instead of rufous, "not unlike," he says, *Muscicapa longipes*, Garnot, Voy. Coquille, pl. xix. f. 1, assigned, perhaps erroneously, to New Zealand. I had previously, p. 496, stated that this bird appeared, "both from form and coloration, to be a *Brachypteryx*."

339 *bis*. CALLENE ALBIVENTRIS, Blanford, P. Z. S. 1867, p. 833, pl. 39; Gould, B. Asia, pt. xx. pl. 16. The White-bellied Short-wing.

I append a short description :—Dusky cyaneous, the chin and lores black; a bluish white frontal band; quills and tail-feathers dusky, edged bluish; the middle of the abdomen white, the sides ashy; bill black; feet dusky; irides brown.

Length 6 inches; wing 3·1; tail 2·6; bill at front 0·5; tarsus 1·1.

In this species the female is said to resemble the male, but to be only a very little paler, thus differing from the other two species.

The egg is clay-coloured.

340. CALLENE FRONTALIS.

The female is figured by Hodgson, along with the male, dusky brown above, paler below; but it is spotted, and is perhaps a young bird. The nest also is figured, domed like a Wren's, and the eggs clay-coloured.

340 *bis*. CALLENE HODGSONI.

Acrocephalus, apud Moore.

Hodgson's Short-wing.

Descr. Brown above, pale below, albescent on the throat and mid belly; base of tail rufous-tawny.

Dimensions. Wing $2\frac{3}{4}$, tail 3, tarsus $1\frac{1}{4}$.

Hab. Nepal.

This is probably the female of some species. Blyth has referred it to *Callene*.

341. HODGSONIUS PHŒNICUROIDES.

I obtained this bird in Gulmurg, in Kashmir, in 1867, and sent it to Viscount Walden. I killed one in brushwood on the skirts of a pine-forest, at about 9000 feet elevation, but also saw it at a still greater elevation. I had not previously seen any specimens, except from Darjeeling. Mr. Hume also has recently had specimens sent him from Kashmir.

343. MYIOPHONUS TEMMINCKII.

Extent of wing 21 inches. In the cold weather I have found this bird in various localities in the North-western Provinces, viz. near Saharanpore, in the Bijnour district, and also in the Punjab. I found its nest near Mussooree, in a hole in a cliff at the very edge of the Batta waterfall. It contained four young ones.

344. HYDRORNIS NIPALENSIS. Figured by Gould, B. Asia, pt. i. pl. 2.

The name given to this bird at Darjeeling by the Bhooteeas is *Tubia kanring*.

345. PITTA BENGALENSIS.

The name adopted by Mr. Elliot, in his valuable monograph of this group, for this species is *Brachyurus coronatus*, Müller. Mr. Blanford found black ants in one specimen, white ants in others. He states this in reference to a remark by Wallace that, though called Ant-thrushes, he had never found that they had eaten ants, but simply Coleoptera.

I omit to mention the beautiful *Pitta cyanea*, Blyth, from Burmah, figured by Gould, B. Asia, pt. i. pl. 3.

347. HYDROBATA ASIATICA.

The bird described by Stoliczka, no. 95 of his list, is certainly the young of this bird, as has been already pointed out by Viscount Walden.

I looked in vain for either of the two other species of Dipper in the higher valleys of Kashmir and the Punjab; but Dr. Stoliczka was more fortunate; for he found *Hydrobata cashmirensis* in the north of Kashmir, and also high up the valley of the Sutlej.

350. ZOOTHERA MONTICOLA.

The tail-feathers are obsoletely barred on their outer webs.

This bird is very generally found in the N.W. Himalayas, near streams and marshy spots, especially in winter.

Blyth remarks that *Zoothera* is merely a highly developed *Oreocincla,* and that *Turdulus wardi* and *Turdus neelgherriensis* have both been named as *Zootheræ* by different authors.

Dr. Stoliczka recognizes *Petrocincla castaneocollis,* Lesson, mentioned p. 514, from the Himalayas, as a state of plumage of *Petrocincla saxatilis* of Europe. He obtained it at Drás, in Western Thibet, in September; and it will therefore hardly enter our limits unless hereafter found elsewhere, which may well happen in winter.

352. OROCETES ERYTHROGASTRA.

Figured by Gould, Birds of Asia, pt. xv. pl. 11.

The egg is figured by Hodgson, and, says Blyth, resembles that of a Robin. Brooks says that its song is loud, sweet, and varied, hardly inferior to that of *Turdus musicus.*

353. OROCETES CINCLORHYNCHUS.

One measured in the flesh was 7¼ inches in length, extent 12¼, tarsus ⅞. Bill black, bright yellow at the gape. In summer the back becomes wholly black. Blanford found that it had partaken of ants and Coleoptera; and I have also observed more recently that insects form its food more generally than fruit.

Brooks describes its song as soft and mellow, and its note of alarm very Chat-like. This excellent observer has noticed a nest which he presumed to be that of this bird, in a hole of an old wall in Kumaon. It was formed of roots, twigs, and grass, and contained four eggs, pale buff or salmon-colour, finely mottled, chiefly at the large end, with very pale reddish brown.

Another species of this genus is *Orocetes gularis,* Swinhoe, Ibis, 1863, pl. 3, from China.

355. GEOCICHLA CITRINA.

This is *Turdus albonotatus* of Cuvier, fide Pucheran.

Swinhoe notices that the feathers of the rump of *Geocichla* are spinous. Blanford doubts the olive-coloured specimens being adult females; but Hume supports the view I had taken.

Blyth had one in a cage for some time, and remarks that its song is plaintive, mellow, and Robin-like, but little varied. I have frequently seen it caged in the North-west Provinces, where it was called *Tinrang ka Kastura*, or the Three-coloured Thrush.

356. GEOCICHLA UNICOLOR.

Figured by Gould, B. of Asia, pt. x. pl. 16 (*the male only*).

One I measured in Kashmir had the wing 5 inches, extent 15¼. This is the Blackbird of Kashmir, being very common in the valley in summer, and very generally caged there under the name of *Kastura*. Stoliczka states that he found it common in Chamba (where I also found it), in Kishtevar, and also in Little Thibet. I accept Mr. Brooks's opinion of its position, and would now remove it to *Merula*.

Its nest is stated to be placed on a tree, or occasionally on the side of a rock, and to be formed of moss, lined with grass; the eggs, four in number, to be greenish-white, blotched and spotted with reddish-brown.

357. TURDULUS WARDI.

This species breeds on the hills in June and July, the nest, according to Hutton, being made of moss, fibres, &c., placed in a rather tall tree, and the eggs closely resembling those of *Turdus unicolor*.

358. TURDULUS CARDIS.

The Thrush noticed under the above name in 'The Birds of India' will, I hope, in future be saved the painful addition of more synonyms; for it has, since first brought under the notice of naturalists by Blyth, been referred at different times to three previously named species, and has received two names *de novo*. I shall now give the history of this confusion. Mr. Blyth was the first to describe this bird, which he did as an old male of *Turdus unicolor*. He afterwards corrected this error, and named it *Geocichla dissimilis*. I was just going to press with the portion of my 'Birds of India' referring to this bird, and had placed it as *Geocichla dissimilis*, when I received 'The Ibis' for January 1862, in which, at page 92, Blyth writes as follows:—"A bird sent me by Swinhoe as

Turdus cardis, ♀, is my *dissimilis*." I had neither materials nor time to correct this, and therefore at once adopted this correction. In 1863 Mr. Sclater described a *Turdus hortulorum* from China, of which Swinhoe writes:—"I believe Blyth's *Turdis dissimilis* is not the same as the South-China species (i. e. *hortulorum*)" (with which, however, Swinhoe, *in epist.*, had written me that Blyth had originally identified it); "neither surely can it be *Turdus cardis*, with which Jerdon has confounded it." Whether my confusion was owing to Mr. Swinhoe labelling his specimen wrongly, or Blyth mistaking it, I must leave those gentlemen to settle for themselves; for I have absolved myself, I hope.

At the conclusion of my account of this bird, p. 522, I state that the female (i. e. *dissimilis*) so much resembles the coloration of *Turdus chrysolaus*, Temm. P. C. 537, that, judging from the figure alone, I cannot help suspecting their identity. Blyth, in his Commentary on my 'Birds of India,' accepted this identification; and Hume, in his list, privately printed for distribution, adopted it.

To conclude, Major Godwin-Austen got a fine specimen of this bird on the Garrow hills, which Mr. Swinhoe at once identified, unhesitatingly, as *T. hortulorum* as known to him, and Mr. Blyth and myself agree to be his *T. dissimilis*; so that it must hereafter take its place in the system as

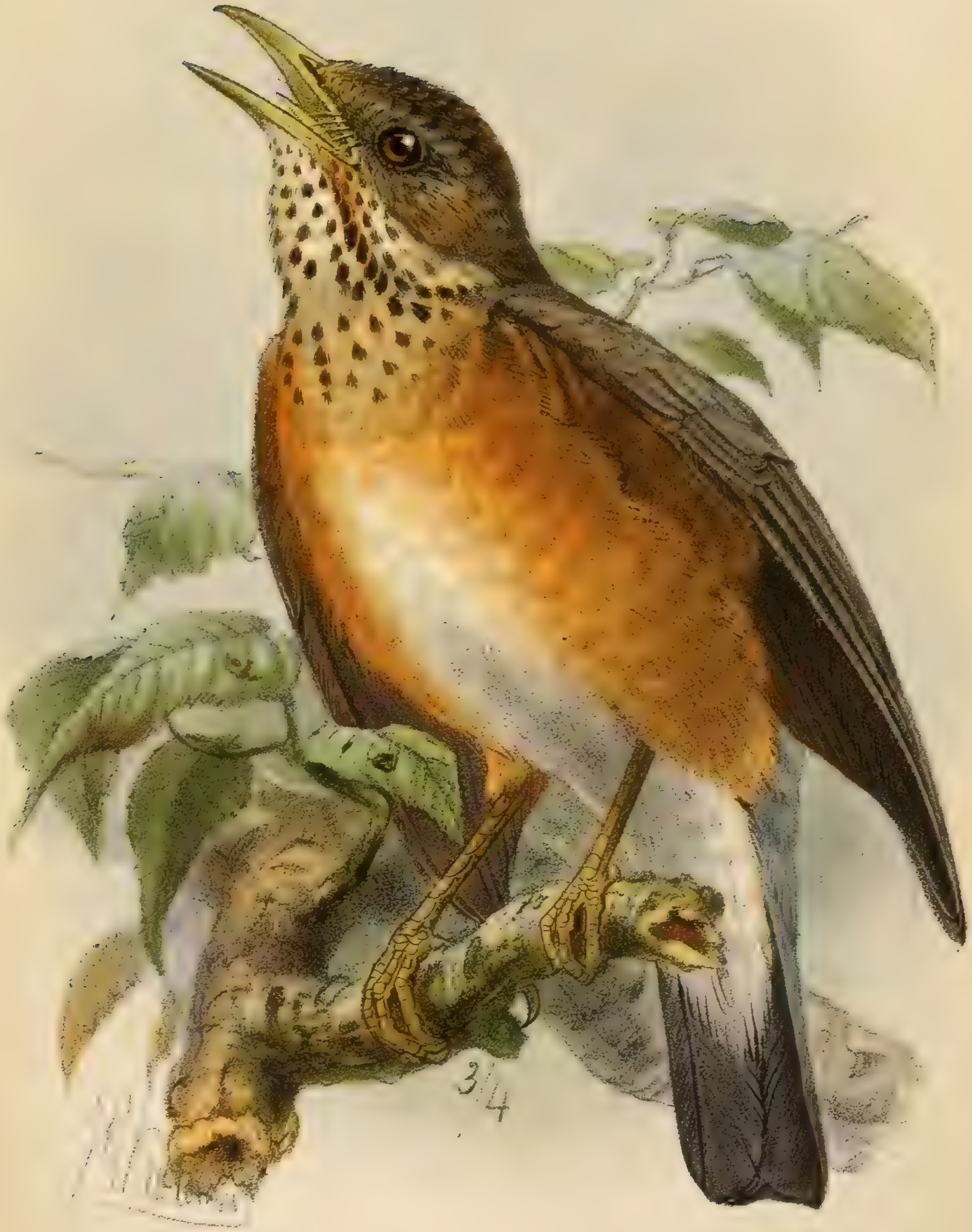
358. GEOCICHLA DISSIMILIS. (Plate VII.)

The figure (Pl. VII.) is taken from Major Godwin-Austen's specimen.

358 *bis*. GEOCICHLA OBSCURA (Gmelin).
Turdus pallens, Pallas.
T. rufulus, Eyton.
T. modestus, Blyth.
T. chrysolaus, Temm. apud Godwin-Austen.
T. pallidus, Swinhoe.
T. davidianus, Milne-Edwards.
The White-browed Thrush.

Major Godwin-Austen got one specimen of this Thrush at Cherra Poonjee, in November. It had the upper parts olivaceous, darker on the head, with a white supercilium; quills dusky

Ibis 1872. Pl. VII.



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J. G. Keulemans lith.

M. & N. Hanhart imp.

TURDUS DISSIMILIS.

olivaceous; chin and throat white, with a dark stripe from the base of the lower mandible, becoming faint on the side of the neck; breast, sides, and under wing-coverts pale ferruginous; lower part of breast and belly white.

Bill black above, yellow beneath; irides dark brown; legs dusky yellow. Length 9¼ inches; extent 14; wing 5; tail 3⅓; tarsus 1$\frac{2}{10}$.

Other species of *Geocichla* not referred to in the text are *G. erythronota,* Sclater, from Celebes, and *G. layardi,* Walden (Ann. N. H. ser. 4, vol. v. p. 416), from Ceylon. My suspicion of the identity of *Turdus avensis,* Gray, with *T. interpres,* of Java, is confirmed by Blyth.

Hume has a new species of Thrush which he calls

GEOCICHLA TRICOLOR.

Descr. Whole head, neck, throat, breast, and upper parts dusky blackish slate-colour, almost quite black upon the top of the head, greyer on the back, and browner on the quills and lateral tail-feathers. Wing-lining, lateral portions of upper abdomen, sides and tibial feathers bright orange-ferruginous; centre of upper two thirds of abdomen, whole of lower two thirds, vent, flanks, and lower tail-coverts, and extreme tip of the chin pure white.

Length 8·5, wing 4·6, tail 3·2, bill at front 0·7, tarsus 1·1. Bill yellow; legs and feet fleshy yellow.

From Tipperah.

361. MERULA BOULBOUL. Figured by Gould, B. Asia, pt. xi. pl. 12.

The bill is orange; legs dingy yellow; extent of wings 17 inches. Mr. Brooks, a most competent authority on this point, describes the song as "most agreeable, rather more varied than that of the English Blackbird, and in a higher key." This Blackbird visits the plains of India to some considerable distance from the hills in winter.

361 *bis*. MERULA VULGARIS?.

I obtained a young Blackbird, one of a party of six, near Gulmurg, at a height of above 12,000 feet, in July. It measured

11 inches in length, 18 in extent, wing 6, tail $5\frac{1}{4}$, tarsus $1\frac{1}{2}$, bill from front $\frac{3}{4}$.

At the time, I considered it to be a young *Merula vulgaris*; and I saw in Ladak many presumed to be the same. My specimen is now in Lord Walden's collection.

Mr. Adams says that *M. vulgaris* is a common cage-bird in the Punjab, brought probably from Afghanistan.

362. MERULA ALBOCINCTA and (363) M. CASTANEA. Figured by Gould, B. Asia, pt. xi. pls. 10 and 11.

It appears from specimens recently collected, of which Col. Tytler has a large series, that these supposed two species must really merge into one. Under what circumstances of age or season this change takes place must be determined by future observers. Blyth states it as his opinion that "they must be looked at rather as parallel phases than as indicative of age." This bird is much more common in the N.W. Himalayas than in Sikkim, and it extends to Kashmir.

Merula albiceps, Swinhoe, from Formosa, is a somewhat allied species.

364. PLANESTICUS RUFICOLLIS.

The reference to Gould, B. Asia, should be pt. iv. pl. 16. Speke observed large flocks of this Thrush in Lahoul, in May and June, close to the snows, where there were no trees near.

365. PLANESTICUS ATROGULARIS.

This is still considered by some to be the same species as the last, some individuals having the tail more or less rufous.

Merula leucogaster, alluded to p. 527, from Munnipore, Blyth now looks on as an old highly coloured *Turdus atrogularis*.

This Thrush is very abundant in the cold weather in the N.W. Provinces. It has recently been killed in England.

366. PLANESTICUS FUSCATUS. Figured by Gould B. Asia, pt. iv. pl. 15.

368. TURDUS HODGSONI.

On looking over a series of specimens of Missel-Thrushes, Himalayan and English, with Canon Tristram last September, I fully recognized their perfect identity; and Sharpe and Dresser have also, after a still more complete examination, come to the same conclusion; so this species must stand in the 'Birds of 'India' as TURDUS VISCIVORUS.

It is interesting to note that the Kashmir name of this Thrush is *Eili-kau* or *Eili-chettar*, meaning Mistle-crow and Mistle-eater. One I killed in Gulmurg measured 11 inches in length, 18½ in extent of wing. It breeds abundantly both in Kashmir and in the Sutlej valley.

370. OREOCINCLA MOLLISSIMA.

This Thrush also extends to Kashmir, and has, indeed, been sent from Moupin by Père David.

The feathers of the rump in this species are distinctly spinous.

371. OREOCINCLA DAUMA.

One killed at Darjeeling measured in the flesh 10¾ inches in length, extent 17⅜, wing 5¾, tail nearly 4, tarsus 1¼, foot 2.

A very closely allied bird from Formosa, stated to be larger and somewhat paler, was named *O. hancii* by Swinhoe, but is now considered by him identical.

372. OREOCINCLA NEELGHERRIENSIS.

The *Zoothera imbricata* of Layard, from Ceylon, turns out to be the same as this bird.

[To be continued.]

XVI.—*On the Flight of Birds.*

By Captain F. W. HUTTON, C. M. Z. S.

THE mechanism of flight has lately been very fully and ably discussed both in England and on the continent of Europe; but considerable obscurity seems still to exist as to the actual movement of the wings of birds when flying.

Mr. Macgillivray ('British Birds.' vol. i. p. 43) says that the effective stroke of the wing is delivered downward and backward, and that the resistance of the air bends upward the tips of the feather and in this way gives a forward impulse to the bird. The opinion of the Duke of Argyll appears to be the same ('Reign of Law,' p. 142 &c.); but he says (more correctly, I think) that the stroke is delivered directly downward. The experiments of Dr. Pettigrew, however, on sparrows with cut wings, show that progression is not obtained by the uplifting of the free ends of the feathers; for their flight was apparently in no way impaired when the free ends of the feathers were cut off.

Dr. Pettigrew, in his admirable paper on the subject (Trans. Linn. Soc. xxvi.), asserts that the effective stroke is downward and forward, and that by a peculiar twisting or screwing motion of the wing (which I am bound to confess I do not quite understand) the air is forced to escape near the root of the pinion, between the secondary and the tertiary feathers, in a downward and backward direction, and that the reaction thus produced supports the bird and drives it forward. Dr. Pettigrew's own experiments, however, hardly support his theory; for both No. 12 and No. 13 (p. 220) show that the feathers forming the funnel by which the air is supposed to escape, are not necessary for flight, while No. 18 proves that, although the secondaries may be complete, flight is prevented by cutting off the ends of the primaries; that is to say, his experiments show that flight in reality depends principally upon the primary feathers, while his theory makes it depend principally upon the secondary ones. Both Dr. Pettigrew and Mr. Macgillivray consider that the wing is extended during the down-stroke, and more or less folded during the up-stroke; and Dr. Pettigrew and the Duke of Argyll agree that the wings during progression describe a "wave-track," or undulating line in the air. But the ingenious experiments of Prof. Marey (Ibis, April 1870) appear to show that during the down-stroke the wing moves first slightly forward, then more and more backward—and in the up-stroke, at first backward and then forward into its original place again, thus describing, during progression, a cycloidal curve in the air; also that during the greater part of the down-stroke the wing, by turning on its axis, slopes forward and downward, while during the up-stroke it slopes forward and upward—thus being, on this point, quite opposed to Dr. Pettigrew, who states distinctly (p. 255) that during the down-stroke no depression of the anterior margin and elevation of the posterior one takes place. Under these circumstances a few observations that I have made on the motion of the wings of the Sea-gull during flight may perhaps prove of interest; for I think that they will reconcile many of these discrepancies, as well as explain all the anomalies observed by Dr. Pettigrew in his experiments with sparrows, and at the same time will supply a theory of flight much simpler than any of those hitherto proposed. My observations were made on the Black-backed Gull of the southern hemisphere (*Larus dominicanus*); but doubtless they will apply to all other Gulls, and probably even to all other birds.

No better opportunity occurs of observing the movements of the wings of a living bird in a free state than when on board a steamer steaming head to wind, and surrounded by a flock of Gulls. The Sea-gull is a bird that moves its wings so slowly that their movements can be followed by the eye; and under the conditions just mentioned they can be seen in all positions, either vertically or horizontally, the bird apparently remaining stationary for several minutes together, although in reality flying just as fast as the steamer is going. When a Gull is viewed from the side, it is easily seen that the stroke of the wing, from the shoulder, is vertically up and down, or very nearly so; and when observed directly over head, it is still more easily seen that, at each downward stroke, the primary feathers from the carpal or wrist-joint are moved backward, slightly closing the wing, but without any perceptible bending of the elbow-joint. I cannot, of course, say exactly at what time the backward stroke begins, only that it is principally delivered during the downward stroke, which agrees fairly enough with Prof. Marey's experiments, which show that the back-stroke commences soon after the down-stroke has begun, and finishes soon after the up-stroke has begun. The mechanical principles here employed are obvious. The support of the bird in the air is partly obtained by the concave under surface of the wing offering more resistance to the air during the downward stroke than the convex upper surface does during the upward stroke. The rise of the bird during the down-stroke, and its fall during the up-stroke are quite perceptible when viewed horizontally; its flight, however, would be nothing more than a series of tremendous jerks upward and downward, which, even with immense exertion, would hardly raise it in the air, if it were not that by far the greater part of its support is derived from its forward progress, as I have already explained when describing the sailing flight of the Albatros (Phil. Mag., Aug. 1869). This forward progress is obtained by the backward stroke, or rowing motion, of the primaries from the carpal joint, which, combined with the downward movement, makes the feathers press on the air in a downward and backward direction. While, therefore, the movement of the main part of the wing from the shoulder is vertical, the tips, by having also a horizontal movement, do not describe an undulating line in the air, but a cycloidal curve, thus confirming the experiments of Prof. Marey.

No twisting of the wing on its axis is perceptible by the eye; but such a movement probably takes place; for the anatomical investigations of Dr. Pettigrew show that "during flexion the anterior margin is slightly directed downwards, and in extension decidedly directed upwards" (*l. c.* p. 241). It is, I think, the erroneous idea that flexion must occur during the up-stroke that has led Dr. Pettigrew astray in his theory of the flight of birds. A moment's consideration will show that it is during the up-stroke, which must tend to depress the bird, that the largest surface of wing is required to take advantage of the progressive movement obtained by the down-stroke, and so, by acting like a kite, prevent the bird from falling. If the flexion of the wing during the down-stroke be allowed, and this I have distinctly seen, the descrepancy in the description of the movement of the wings by Dr. Pettigrew and Prof. Marey, which I have already pointed out, disappears.

Dr. Pettigrew's experiments, Nos. 14 and 18, show that when the primary feathers, or the tips of the wings, are much shortened, flight is stopped, or much impeded in birds, but not in insects, the reason of this difference being that the latter cannot bend their wings, but obtain forward progression in quite a different manner to birds. Experiments Nos. 12 and 13 show that if the primaries are left entire, or nearly so, flight is but little impaired, although the greater part of the other feathers may be cut off. This is because the primaries are the portion of the wing by which progression is obtained, and it is progression that principally supports the bird; for without progression, either upward or onward, no bird can remain in the air. The same principle also explains why flight is nearly perfect when the tip of one wing only is cut off; for enough still remains for progression, and although the impulse must be greater on one side than on the other, still the bird can easily correct this when progression is once obtained. Experiment No. 19, however, which shows that when the carpal joints are rendered immoveable flight is entirely prevented, although the wings in all other respects are perfect, goes far, I think, to prove the correctness of the views here advanced; and if another experiment should be made in which the elbow-joints were fixed, while the carpal joints were quite free, and the action of the muscles unimpeded, and the bird then found to fly with ease, all doubts on the subject would, I think, disappear.

Wellington, New Zealand,
October 16th, 1871.

P.S.—Since the above was written I have had the pleasure of reading Prof. Marey's valuable and clearly written lectures "On the Phenomena of Flight in the Animal Kingdom," translated for the Smithsonian Institution ('Smithsonian Reports,' 1869). It will be seen that the results of M. Marey's experiments are fully borne out by my observations on the Sea-gull in its natural state, the only point on which I differ from him being the way in which progression is obtained; and his opinion in this case, is not derived from experiment, but from theoretical considerations only, while mine is from direct observation. If, in M. Marey's theory, the backward stroke of the primary feathers be substituted for the uplifting of the posterior margin of the wing by the resistance of the air, I believe that the true principles in the flight of birds will be thoroughly understood, the only thing remaining to be done being to obtain experimentally formulæ for the resistance of the air to the front and under surfaces of birds when the wings are fully expanded, as in sailing flight.

XVII.—*On* Charadrius asiaticus *and* Ch. damarensis.

By Dr. O. Finsch.

Through a dear friend of mine, Paul Conrad, Captain of the Bremen barque 'Herzog Ernst,' I received a pair of Red-breasted Plovers collected by him during his stay at Saigon, in Cochin-china. Both specimens were shot on the 11th of April, 1870, and proved, on dissection, to be male and female. The male is in full nuptial dress, and agrees exactly with the plate of *Charadrius caspius* of Pallas (Zoogr.), as the celebrated author renamed the species formerly described by him as *Ch. asiaticus.*

Mr. J. E. Harting has given a full account of this species in his excellent article "On rare or little-known *Limicolæ*" (Ibis, 1870, p. 201), and shown that these are two allied species which have been hitherto nearly always confounded. In comparing the specimens from Saigon with others from Australia and Damaraland, as well as with the figures and descriptions published on this species, I find that Mr. Harting is quite right with respect to the specific distinctness of the two; but his synonymy requires rectification. The smaller one, called by him *Eudromias asiaticus* (pl. v.), must stand as *Ch. damarensis,* Strickl.; whereas the larger kind, *Eu. veredus,* Gould (pl. vi.), is the true

Charadrius asiaticus, Pall.

Charadrius asiaticus, Pall. Reise, ii. p. 715 (1773).

Asiatic Plover, Lath. Syn. iii. (1785) p. 207 (ex Pall.).; Bechst. Lath. Uebersicht, iii. (1796) p. 181.

Charadrius asiaticus, Gmel. S. N. ii. (1788) p. 684 (ex Pall.).

C. jugularis, Wagl. Syst. Av. (1827) sp. 39 (ex Pall.).

C. caspius, Pall. Zoogr. Rosso-As. ii. (1831) p. 136, pl. 58 (= *asiaticus*).

C. asiaticus, Blas. in Nachtr. zu Naum. vol. xiii. (1860) p. 225, t. 386. f. 1 (ad.).

C. veredus, Gould, P. Z. S. 1848, p. 38; *id.* B. Austr. vi. pl. 14.

Cirrepidesmus asiaticus, Gould, Handb. B. Austr. ii. (1865) p. 229 (=*veredus*).

Charadrius asiaticus, Schleg. Mus. P. B. Cursores (1865), p. 38 (sol. spec. no. 5).

Eudromias veredus, Harting, Ibis, 1870, p. 209, t. vi.

Although Pallas gives no measurements, there can be no doubt that he had before him the larger species, which Mr. Gould afterwards named *Ch. veredus* from young specimens procured in Australia.

Captain Conrad's male specimen from Saigon agrees, as already stated, in every detail with Pallas's description and figure. As in the representation of the latter, the forehead, a broad stripe above the eye to the temporal region, the sides of head, the chin, and throat are white; the jugulum is covered by a broad cinnamon-rufous cross band, edged below by a narrow black line; and the legs and toes are ochreous yellow ("Rostrum pedesque ut in *Hiaticula*," Pall.), as represented also in the plates published by the late Prof. Blasius and Mr. Harting. The former naturalist includes *Ch. asiaticus* in 'Nauman's Vögel Deutschlands,' a specimen having been obtained in Heligoland by Mr. Gätke; but without a comparison of this specimen it will be difficult to decide to which species it belongs. Prof. Blasius describes: "die grossen Schwungfedern von der 6 ten an mit weissem Flecke an der Aussenfahne," which is not observable in *Ch. asiaticus*, but in the smaller *Ch. damarensis*, which has a white basal patch on the outer web of the 7–11th remiges. Apparently some mistake must have occurred in this description; but the figure certainly is that of the true *Ch. asiaticus*. In those given by Mr. Harting the eye-stripe is not pure white, but washed with pale buff, showing that the bird had not yet attained its full plumage.

The female from Saigon has the front, eye-stripe, the sides of the head and neck, forming a collar round the nape (which is much paler and inclining to whitish in the male), the throat and breast rufescent, darker on the posterior parts, and paler on the chin. Otherwise it resembles the male, and would assume a similar dress, as there are some moulting, though still hidden feathers on the jugulum which are as dark rufous as in the male.

A specimen in winter plumage from North-eastern Australia (Lake Elphinstone) resembles the young as described by Mr. Harting (p. 210); but the pale buff colour on the sides of the neck does not extend round the neck, showing that the rufous collar is not an invariable characteristic of this species.

Charadrius damarensis, Strickl.; Contrib. to Ornith. 1852, p. 158.

Ch. asiaticus, Schleg. Mus. P. B. Cursor. p. 38 (excl. spec. no. 5).

Eudromias asiaticus, Harting (nec Pall.), Ibis, 1870, p. 203 (excl. syn.), t. v.

I have not seen the male of this species in full plumage, and must therefore refer to the excellent figure given by Mr. Harting; but I have examined three specimens in winter dress from Damaraland, collected by the late Mr. Andersson.

A male, shot at Otjimbinque on the 15th of December 1864, agrees exactly in coloration with the Australian specimen of *Ch. asiaticus* in winter plumage; on the jugulum there are still some hidden rufous feathers, which are the remains of the summer plumage.

Two females from the same locality are very similar. In one, shot in February, the brown feathers on the upper parts are decidedly pale-margined, forming a collar round the nape; the front, eye-stripe, sides of the head, the chin and throat are buff-coloured. This specimen agrees very closely with the female of *Ch. asiaticus* from Saigon.

It is therefore not always easy, at least in the immature and winter plumages, to distinguish *Ch. asiaticus* and *damarensis* by the plumage only; but the measurements will invariably show the difference, as will be seen by the following Table (in French measurements, *vide* ‘Vögel Ostafrika’s’).

Long. al.	caud.	rostr. a front.	tars.	tib. nud.	dig. med.	
6″ 3‴	25‴	10‴	21‴	8‴	9‴	*asiaticus* ♂. Saigon.
6 2	26	9½	20	10	8½	,, ♀ ,,
6 2	25	10	21	9½	9	,, Australia.
6 2	27	10½	20	8	9½	,, (ap. Blasius).
6 6	25½	13½	24	...	...	,, (*veredus*, ap. Gould).
6 0	29	9	19	8	8	,, (No. 5. Leid. Mus.)
5 6	24	9	18	9½	9	*damarensis* ♂. Damaraland.
5″ 2‴-5″ 5″	28	8½-9	16–17	7½	7–8	,, (*asiaticus*, ap. Schl. nos. 1–4)

The distinguishing characters for the two species would therefore stand, after my experience:—

Ch. asiaticus.	*Ch. damarensis.*
Larger; wings and tarsus always longer.	Smaller.
Legs and toes yellowish.	Legs and toes blackish.
Axillaries like the under wing-coverts, earth-brown.	Axillaries white.
Remiges without white.	Outer web of the 7–11 remiges with a white basal patch.

XVIII.—*Remarks on the Mniotiltine Genus* Geothlypis.

By Osbert Salvin, M.A., F.L.S., F.Z.S., &c.

Some months ago our collector in Veragua, Enrique Arce, sent us a single specimen of a *Geothlypis*, from the slopes of the Volcano of Chiriqui, which has perplexed me not a little. In endeavouring to form a just view as to its proper position, my observations have ranged over nearly every recognized member of the genus, specimens of all but one of which are before me, furnished by Mr. Godman's and my own collection and by that of Mr. Sclater*.

The latest published account of this genus is contained in Prof. Baird's 'Review of American Birds,' p. 219 *et seqq.* From this work it might be gathered that, so far as *Geothlypis æquinoctialis* was concerned, and its closely allied races, the whole of tropical America was occupied by one or other of them, and that it was hardly probable that other races of the same form yet remained to be discovered. The receipt of the specimen above referred to shows us that our information was still incomplete.

One or other of the races of *G. æquinoctialis* is included in each of the large faunas of South America. Thus in Brazil we find *G. velata*†; in Guiana, Trinidad and Venezuela, and the U. S. of Columbia we have *G. æquinoctialis*; and in Central

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* The only species I have not seen is *Geothlypis rostratis*, Bryant, from Nassau, Bahama Is. (Proc. Boston Soc. N. H. xi. p. 67 (1866). Its nearest ally is said to be *G. trichas*; but as I have had no opportunity of examining specimens, I omit further mention of it in the present paper. It would appear to be resident in Nassau.

† The synonymy of all the species here mentioned is so fully investigated in Prof. Baird's work already quoted that it would be superfluous to retraverse this part of the subject.

America *G. poliocephala*. We now find that, in addition to these, another race exists in Chiriqui, which is almost as distinct from the others as they are from one another.

An examination of an extensive series of the better-known races just mentioned shows that they possess, as pointed out by Baird, distinguishable characters; and this I take to be sufficient justification for separating them under different names. Our Chiriqui specimen is unfortunately unique; but the relationship it bears to the other races of the same stock is such that it cannot well be classed with any of them without involving the removal of the barriers which have reasonably been shown to exist between them. In other words, we should have to call *G. velata*, and perhaps also *G. poliocephala*, "varieties" of *G. æquinoctialis*; and this I am not prepared to do, seeing that the variation is associated with a law of geographical distribution, and therefore indicates something in advance of individual variation, to which alone, in my opinion, the term "variety" can properly be applied. Then, too, the fact of the Chiriqui bird being somewhat more closely related to the Brazilian race than to any of the others, singular as it may at first sight seem, is in strict conformity with other instances of a similar distribution in other allied forms, not only of birds, but also of other animals. The science of geographical distribution demands that all such cases should receive close investigation.

Our single specimen, which I propose to call GEOTHLYPIS CHIRIQUENSIS, is a male in adult plumage, and differs from an equally adult example of the same sex, from Costa Rica, which I have attributed to *G. poliocephala*, Baird, *l. c.*[*] (cf. Ibis, 1870, p. 114). In this last-mentioned bird the whole hind parts of the head and nape are ashy, the black of the loral region extending in a narrow line over the forehead and under the orbit as far as its posterior margin. The ear-coverts are ashy, and the flanks tinged with ochraceous brown. In the Chiriqui bird the ash-colour of the head is more restricted, and does not extend over the nape; a broad black band passes over the forehead and embraces the entire orbit as well as the ear-coverts; the flanks are olivaceous.

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[*] Baird described this species from a Mazatlan skin, and states that a Guatemalan skin I sent him differed somewhat, and especially in the former having white eyelids. In the specimens we possess the eyelids are not white; but some have a few white feathers; so that it is probable that the character is not a stable one.

From this comparison it will be seen that this new race does not belong to that found in Costa Rica. It bears a closer relationship to the two races found in South America, of which *G. æquinoctialis* comes nearest in point of locality, but not of affinity. From this it differs not only in the greater breadth of the frontal band, but also in having the olive-colour of the back separated from the orbit by the downward extension of the slate-colour of the occiput. In this latter respect it resembles *G. velata*, but has the frontal band considerably broader than in that race. Though I describe these features from a single specimen, I have abundant means of judging of the stability of the distinctions assigned to the allied races, and hence infer that additional examples will prove that the Chiriqui bird will carry equally stable characters.

The following Table will give some idea how the different forms of this genus stand related to each other, the divisions being intended to show the degree of affinity they bear to one another.

A. gula flava.	
a. pileo summo albo.	
a′. abdomine albicante	1. TRICHAS.
b′. abdomine flavo	2. MELANOPS *.
b. pileo summo nigro.	
c′. rostro nigro, abdomine ochrascente	3. SPECIOSA.
d′. rostro inf. flavicante, abd. læte flavo	4. SEMIFLAVA.
c. pileo summo cinerascente.	
e′. regione parotica anteriore nigra	5. ÆQUINOCTIALIS.
a″. regione postoculari olivacea	*a. æquinoctialis.*
b″. regione postoculari cinerea.	
a‴. fronte late nigra	*β. chiriquensis.*
b‴. fronte anguste nigra	*γ. velata.*
f. regione parotica omnino cinerea	6. POLIOCEPHALA.
B. gula cinerea.	
g′. ciliis nigris	7. PHILADELPHIA.
h′. ciliis albis	8. MACGILLIVRAYI.

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* A female of this species has recently come into our possession. It may easily be distinguished from the corresponding sex of *G. trichas* by the following characters. Like the male it is larger and the feet and legs

I have already shown that though *G. velata* and *G. chiriquensis* are more nearly related to one another than they are to *G. æquinoctialis,* the latter intercepts their range. The following hypothetical explanation of this fact in geographical distribution seems admissible.

Anterior to the union of Guiana with the mainland of South America the ancestral race of the present *Geothlypis velata* and *G. chiriquensis* held territorial sway from Brazil to Veragua, or, perhaps, if Central America was then cut by channels, to the extreme northern limit of the spurs of the Andes. At that time the ancestors of *G. æquinoctialis* were restricted to the island of Guiana. When the union of this latter tract of country with the continent took place, *G. æquinoctialis* began to spread over the valley of the Amazon, and westward through Venezuela and Columbia, driving the contemporary form of *G. velata* southwards into Brazil, and forcing a small detached remnant northwards into the recesses of the remote volcano of Chiriqui. Isolated from its parent stock and incapable of stemming the tide of invasion by an antagonistic race, this small remnant was prevented from spreading over Central America by the contemporary form of *G. poliocephala,* which then occupied Costa Rica and held its own against pressure from the south. Thus hemmed in, it found at last a resting-place in Chiriqui, where alone it has survived, and where it gradually assumed the features which now distinguish it.

G. æquinoctialis and its allies appear to be residents in the countries in which they are found. *G. semiflava, G. speciosa,* and *G. melanops* are also residents, the first in western Ecuador and the last two in Mexico.

There remain three migratory species, whose lines of migration as well as the southern limit of their wandering I now proceed to show.

Geothlypis trichas, of which the summer range spreads over the

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stronger; the upper plumage is not so bright, being more tinged with ochre; the under plumage is more uniform in colour, the throat being of not so bright a yellow, and the colour of the abdomen more ochraceous in tint.

whole of the United States, passes southward in winter to some of the West-India Islands, and even touches Bermuda on passage. It spreads over Mexico and Guatemala, being extremely common from autumn to spring in the latter country. It would appear to occur but sparingly in Costa Rica, as Mr. Lawrence in his list of the birds of that country has to quote an instance, recorded by Cabanis, for its appearance there. We now trace it to Chiriqui; and a single specimen lately received from there gives the most southern point on record touched in the winter migration of this species.

The two grey-throated species of the northern continent are also migrants. *G. philadelphia* of the Eastern States never, to my knowledge, occurs as a winter visitant at any point of Central America north of Costa Rica*. There appears to be no record of its occurrence in winter in any of the West-India Islands; so that it must perform its migration at one flight from the Southern States to Costa Rica, Veragua, and the U. S. of Columbia, from all of which places we possess skins.

Costa Rica, the most western of these places, lies nearly due south of the peninsula of Florida, and is distant about twelve hundred miles. I doubt, however, if *G. philadelphia* flies in a due southerly direction, as the trade-wind would almost inevitably carry it to the westward, and hence to Yucatan; and if to Yucatan, we should find the species in Guatemala, which we do not. It seems more probable that the birds start with a south-easterly course and make some way to windward before being carried by the trades to the South American coast. When arriving there their course would be south-westerly; and thus we see how the promontories of Yucatan and Honduras are missed, and the highlands of Costa Rica are the first land touched. It is also worthy of note that, if the birds travel at the usually computed rate of about 100 miles in three hours, the time occupied in the journey would be 36 hours, or, if they start at night, two nights and a day. It will also be seen that, both in the northward and southward migration, the Island of Cuba would be crossed at the *night.*

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* I have examined the specimens from Mexico called *G. philadelphia* by Sclater (Cat. Am. B. p. 27), and find that they really belong to *G. macgillivrayi*. The skins are in bad condition, and the eye-lids injured and discoloured; but I am satisfied that they belong to the western form.

Geothlypis macgillivrayi in summer occupies the Middle and Western states; and its migration in winter would appear to involve no long sea-flight like that of its eastern neighbour. In winter it spreads over Mexico and Guatemala, and thence to Costa Rica, and as far southward as Chiriqui. Here, however, it seems to stop, and does not pass onwards into the southern continent. From this it will be seen that individuals of the two species are found together during the winter months in Costa Rica, but only within the small territory of that republic. On the return of spring the one would prepare for its long flight over the sea, the other to follow the Cordillera northwards, towards their respective summer abodes.

The migration of *G. philadelphia* is not without parallel amongst the birds of the Eastern States. The line of migration of *Dendrœca castanea* is almost identical; for though its occurrence has been noted in Guatemala, I never obtained a specimen; at Panama, however, it is by no means rare in winter. *Dendrœca cærulea,* too, takes a similar line; but individuals seem occasionally to touch at Cuba, and some (if the specimens cited by Baird have the localities correctly marked) find their way to Guatemala.

These, and others that might be quoted, seldom touch on the West Indies in their flight, but pass onwards for more southern lands to find their winter homes.

XIX. *Contribution to the History of the Blue Crow of America.*

By Elliott Coues, M.A., M.D., Ph.D., etc.

GYMNOKITTA* CYANOCEPHALA.

Gymnorhinus cyanocephalus, Maxim. Reise, 1841, ii. 21 (French ed. iii. 296; English ed., 287, 297).

Gymokitta cyanocephala, Bp. Consp. Av. 1850, i. 382; Cass. Ill. B. Cat. & Tex. 1854, 165, pl. 28; Newberry, Pac. R. R.

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* *Gymnorhinus,* Maxim., 1841, if sufficiently distinct from *Gymnorhina,* Gray, 1840; if the difference in termination be not enough, then *Cyanocephalus,* Bp., 1842; but if preoccupation in botany precludes, then, failing both these names, *Gymnokitta.*

Rep. vi. pt. iv. 1857, 83; Baird, ibid. ix. 1858, 574; Kennerly, ibid. x. 1859, Birds, 32; Coues, Pr. A. N. S. Phil. 1866, 91; Cooper, B. Cal. 1871, 292.

Psilorhinus cyanocephalus, Gray.

Nucifraga (*Gymnokitta*) *cyanocephala*, Gray, Hand-list, ii. 1870, 10.

Cyanocorax cassini, McCall, Pr. A. N. S. Phil. v. 1851, 216.

"*Cyanocephalus wiedi*, Bp." Gray, H.-list, ii. p. 10*.

Generically distinguished by the combination of an ordinary corvine form (pointed wing longer than nearly even tail, and tarsus longer than medius digit) with the usual garruline colour (blue), one character uncommon in either subfamily (complete nakedness of nostrils), and a particular shape of bill (nearly as in certain Icteridæ); standing next to *Picicorvus*, related by this and by *Nucifraga* to the true Crows, and to the Jays by *Psilorhinus*.

Dull blue, nearly uniform, but much brighter on the head, paler on the abdomen; chin and throat streaked with whitish; remiges internally fuscous; bill and feet black; iris brown. ♂, 11–12 inches long; extent of wings 16·5–19·5; wing 5·5–6·0; tail 4·0–4·5; bill (along culmen) about 1·33; tarsus (in front) about 1·66; medius digit (with claw) about 1·33. ♀ similar, but usually duller in colour, and smaller; length 10·5–11·5; extent 15–17, &c. Newly fledged birds are commonly smaller still, and show little blue, being mostly dusky grey. Independently of seasonal, sexual, or other definite conditions, there is a great difference in the purity and intensity of the blue; that of the head is sometimes sharply contrasted with the paler shade of the back, and sometimes fades insensibly into the latter. The whitish gular streaks are sometimes faintly indicated; sometimes they are very strong, and even extend on the breast. The abdomen is frequently greyish white, with barely a shade of blue. The remiges wear from fuscous to grey.

This rather remarkable type appears to have been first noticed in 1841; and the brief synonymy it has since acquired results more from different interpretation of rules of nomenclature than

* [At Dr. Coues's request we have searched for this reference, but in vain. Mr. Gray gives its date as 1842.—Ed.]

from conflicting views of its systematic position. To our opinion upon this latter point, already expressed, we have only to add that we hold the bird to be *sui generis,* while conceding its close relationships to neighbouring forms. So far as we know, only two nominal species have hitherto been instituted at its expense; one of these we are obliged to quote on Gray's authority. Since the Prince von Wied's notices, which appeared in German, French, and English, the literature of the subject is mainly represented by Mr. Cassin's valuable article, accompanied by a characteristic figure, Prof. Baird's accurate description, both generic and specific, and the partial biographies of several naturalists who met with the bird alive. For many years the species was considered a rarity, to be highly prized, and may still remain among the *desiderata* of many or most European collections; but of late a great many specimens have been gathered, notably in California, by the late Capt. John Feilner, of the Army (in whose death, at the hands of hostile Indians, ornithology lost a zealous and judicious collector), and in Arizona by ourselves.

The Prince's original examples are stated to have come from one of the tributaries of the Upper Missouri, in the then extensive territory of Nebraska, which locality, if not beyond the bird's ordinary range, is certainly far from its centre of abundance, for which we must turn some degrees south-westward. Dr. Hayden, who explored the same section of country with signal ability and success, does not appear to have met with it; and we judge, upon several considerations, that Maximilian's quotation may indicate very nearly the north-east extension of the species. This impression of ours is strengthened, if not confirmed, by the fact that the north-eastward dispersion of *Picicorvus columbianus* has proved nearly coincident; for, as may be gathered by comparing the present article with one upon *Picicorvus* which we had the pleasure of laying before the readers of 'The Ibis,' these two birds occupy essentially the same faunal area in altitude as well as in latitude. General MacCall, then Inspector-General of the Army, found his "*Cyanocorax cassini*" abundant near Santa Fé, in New Mexico (alt. 7000 ft.; lat. 35° 41′ N.; long. 106° 2′ W. Greenw.). Dr. C. B. R. Kennerly, whilst attached to Lieut. Whipple's Survey of the 35th parallel, across New Mexico and Arizona, fell in with great numbers of the birds in the first mentioned territory, near San Miguel and at Fort Webster; and these New-Mexican citations are checked by the records of several other naturalists. Captain Feilner procured his fine suite of skins at Fort Crook, in Northern California. Our Oregon reference is principally Dr. J. S. Newberry, whose well-known important geological researches in the west are admirably supplemented by his observations in other departments of science. Referring to the bird's occurrence in the Des-Chutes basin, this naturalist further remarks:—"The fauna and flora of this district, as well as all its climatic and geographic conditions, connect it with the central desert of the continent, a region lying along the Rocky Mountains on either side, characterized by an arid climate and sterile soil, by plains covered with *Artemisia* and ridges of trap rock, on which grow the western cedar (*Juniperus occidentalis*) and the yellow pine (*Pinus brachyptera*). The black-tailed deer (*Cervus macrotis*), the badger (*Taxus labradorius*), Townsend's hare, the little *Lagomys,* and striped Spermophile are its most characteristic quadrupeds; the Sage Hen (*Centrocercus urophasianus*), Townsend's Ptilogonys, and Prince Maximilian's Jay, some of its peculiar birds." The Washington territory records are silent in this case; but we rather anticipate data from this quarter corresponding somewhat to the observations there of Dr. Cooper and of Suckley, if not also of Mr. Lord, upon *Picicorvus*; for in other directions, as we now see, reports of the two birds are strikingly coincident. In respect of altitude, that of *Gymnokitta* may be a little lower; but we doubt this: and if it has not yet been seen so high up mountain-peaks as *Picicorvus,* the evidence is still only negative. In a word, it is essentially a bird of the coniferous zone of vegetation, within the geographical area just indicated,—eastward, to the foothills and spurs of the Rocky Mountains, westward to the opposite slopes of the Cascade and coast ranges: while to the north it has not been traced as far as the *Picicorvus* (Sitka), to the south it remains, like *Picicorvus,* undiscovered on the *tierra fria* of Mexico. It breeds at or near the terminus of its altitudinal dispersion, ascending in winter to, if not a little beyond, the pine belt.

At Fort Whipple, in Arizona, where our personal observations were made, the bird may be considered a permanent resident: though we did not observe it breeding in the immediate vicinity, it nests) as we know from the circumstance of finding newly fledged young in July) in the neighbouring and more elevated San Francisco and Bill Williams Mountains. We were never so fortunate as to discover its nest, and believe that its nidification remains unknown. Like most of its tribe—in fact, like most birds largely subsisting on varied animal and vegetable food—it is not strictly migratory; for it finds nourishment in winter anywhere, except perhaps at its highest point of dispersion; and a descent of a few thousand feet from mountain-tops appears to answer the purpose of the southward journey that migratory species perform, as far as food is concerned, while its hardy nature enables it to endure the rigours of winter in regions frequently snow-bound.

We may safely check the conflicting testimony respecting this bird's food (indeed we must do so) by simply crediting it with the omnivorous nature that is a strong and nearly exceptionless trait of the family *Corvidæ*. Thus Dr. Kennerly says:—"Its food appears to be exclusively reptiles;" * * * the flocks he saw * * * "constantly alighted on the ground, for the purpose, as I [he] ascertained, of capturing lizards, which they killed with great readiness;" and Mr. Cassin reasons, upon his correspondent's accounts, that "it does not appear to be in any considerable degree a fruit-eater, but is decidedly carnivorous and almost rapacious;" and further draws an analogy with the reptilivorous Kingfishers (*Todiramphus*). But this is going too far; and we will hear the other side. Dr. Newberry saw the birds "feeding on the berries of the cedar (*Juniperus occidentalis*);" and one that he killed "had the œsophagus filled with the seeds of the yellow pine." Our own testimony, emphatic and unreserved, is to the same effect. According to our two years' observations the bird feeds principally upon juniper berries and pine seeds, also upon acorns, and probably other small hard fruits; and during the winter, when they were particularly numerous at Fort Whipple, they could not possibly have eaten reptiles; for no serpents, lizards, or frogs are abroad at that season. Truly we never saw one capture a reptile; but this, so far from impugning Dr. Kennerly's evidence, simply brings us back to the opening sentence of this paragraph. The particular shape of the bill may indicate something in the bird's regimen that we do not yet exactly understand; but, after all, the bill is not so very different from that of *Picicorvus,* and our observations show an extremely close similarity in the modes of life of the two species. If required, upon the evidence of reptilivorous habits, to draw a parallel, in some other family, with *Gymnokitta,* we might instance one of the Saurotherinæ, such as *Geococcyx californianus,* in contrast with ordinary arboricole Cuculidæ.

Notwithstanding its essentially corvine form, the habits of this bird, like its colour, lean hard upon those of Jays. Like these last, it is a garrulous, vociferous creature, of various curiously modulated chattering notes when at ease, and of extremely loud harsh cries when in fear or anger. The former are somewhat guttural; but the latter possess a resonance different alike from the hoarseness of the screams of *Cyanura macrolopha* and the wiry sharpness of the voice of *Cyanocitta woodhousii.* Like Jays, again, it is a restless, impetuous bird, as it were of an unbalanced, even frivolous mind, its turbulent presence contrasting strongly with the usually poised and somewhat sedate demeanonr of the larger black *Corvi.* With these last, however, it shares a strong character—its attitudes when on the ground, to which it very frequently descends, being crow-like, and its gait, an easy walk or run, differing notably from the leaping mode of progression that is habitual with Jays. When perching, its customary attitude is rather stiff and prim, if indeed not quite so erect as Mr. Cassin's figure indicates. It shares, with its relatives on either side of the family, a shy and watchful disposition. Its flight is most nearly like that of *Picicorvus.* Perhaps gregariousness is its prominent distinctive trait. Immense as the gatherings of Crows frequently are, this seems rather due to community of interest than to a true social instinct; each individual looks out for himself, and the company disperses for cause as readily as it assembles. It is different with these small Jay Crows; they "make up" in flocks, sometimes of surprising numbers, usually keep as close together as Blackbirds*, and move as if actuated by a common impulse. Their dispersion, as usual, is marked, if not complete, during the breeding-season; but the flocks reassemble as soon as the yearlings are well on wing; and from this time, until the following spring, one may more often see a hundred, or several hundreds, together than fall in with single birds. As we have elsewhere stated, we have witnessed a gathering of probably a thousand individuals, a sight that recalled Dr. Latham's statement respecting flocks of twenty thousand *Cyanura cristata*, with the thought that he would have come at any rate *nearer* the truth, and been less deserving of Wilson's sarcasm, could he have set down such figures against *Gymnokitta cyanocephala*.

XX.—*Notes on the Resident and Migratory Birds of Madeira and the Canaries.* By F. Du Cane Godman, F.Z.S. &c.

A visit to Madeira or the Canaries in early spring is, I think, one of the most enjoyable things one can imagine. Leaving behind the cold disagreeable weather we usually experience at that time of the year in England, in rather more than a week one finds one's self in a warm and genial climate, surrounded by most lovely scenery and a semitropical vegetation, which much more than compensate for the discomfort of the voyage.

In March last year I paid a visit to these islands, and gave special attention to their ornithology, making a collection of all the birds I could procure; and in the following paper I propose to relate the results of my observations during the excursion, together with all the information I can glean from other sources, so as to make it as complete as possible; and I trust it may not be without interest to the readers of 'The Ibis.'

These two groups of islands present no new field to the naturalist; and there are few of our countrymen, at all events, who are not acquainted with the various works of Mr. Wollaston founded on his indefatigable labours and interesting discoveries, the result of which has been to bring to light so many hitherto unknown and remarkable forms, especially amongst the Coleoptera. MM. Webb and Berthelot, too, have published a most comprehensive work on the botany and zoology of the Canaries, including in the latter the ornithology; but probably the best authority on this last-named subject is Dr. Bolle, who has written several papers in the 'Journal für Ornithologie'*. Mr. Vernon Harcourt has given very complete lists of the birds of Madeira in the 'Proceedings of the Zoological Society,' and the 'Annals and Magazine of Natural History'†. Lastly, I must not omit to mention a short paper written by Prof. Newton in this Journal, and entitled "Two Days in Madeira"‡. As might be supposed, from so hurried a visit, the latter article contains rather suggestions for future ornithologists to work out than new information respecting the birds inhabiting the island. I have freely made use of the works of all these authors, and, in most cases where I have done so, have mentioned whence my information has been derived; the remainder is from what came under my own notice.

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* [*Molothrus.*—Ed.]

Unfortunately, in consequence of the prevalence of smallpox in Europe last year, I experienced considerable annoyance and delay through the stringent quarantine regulations enforced by the Spanish and Portuguese Governments, rendering communication between the several islands very difficult. Indeed, through the loss of time thus entailed, I found it quite impossible to visit as many of them as I had intended; and instead of spending four months between the two groups, I was obliged to be content with two, as, in leaving the Canaries for Madeira, I was compelled to go through Spain, and take the steamer again from Lisbon, all direct intercourse between the islands being prohibited. My time being thus sadly curtailed, I thought it better to pass the greater part of what remained in Teneriffe, the most important of the Canaries, making a short trip to Palma and Gran Canary, and thence afterwards going to Madeira, as I have already said, *viâ* Cadiz and Lisbon. Under ordinary circumstances these islands are very accessible from

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* J. für Orn. 1854, pp. 447–462; 1855, pp. 171–181; 1857, pp. 258–292; 1858, pp. 225–228; 1862, pp. 357–360.

† P. Z. S., 1851, pp. 141–146; Ann. & Mag. N. H. 2nd ser. vol. xii. pp. 58–63 (1853); vol. xv. pp. 430–438 (1855).

‡ Ibis, 1863, pp. 185–195.

England, as there are constantly steamers from Liverpool to the African coast, most of which call at either Madeira, Teneriffe, or Gran Canary, and there are also the regular Portuguese and Spanish mail-steamers. To a naturalist these isolated spots have an interest not possessed to the same extent by continents, inasmuch as they are more capable of throwing light on the important question of geographical distribution.

All the Atlantic islands are volcanic, and consequently mountainous; and in some the traces of recent volcanic eruptions fall within the historic period. In others there are large tracts of land covered with cinders and scoriæ almost destitute of vegetable life, whilst, again, in others, where the eruptions are of older date and the lavas more disintegrated, vegetation is exceedingly luxuriant. To the stranger, perhaps, one of the most striking features is, that there is scarcely a flat piece of ground throughout, but the whole surface is broken up into innumerable abrupt mountains and hills varying in height from the Peak of Teneriffe, which attains an altitude above the sea-level of more than 12,000 feet, down to small conical hills of ashes not exceeding 100 feet in height.

The climate of the Canaries near the coast, and more especially of the eastern islands, is very dry, and during a great part of the year little or no rain falls in the vicinity of the sea; while, in consequence of the continual north-east trade winds to which all the islands are subject for a great portion of the year, a dense belt of mist forms and rests upon the mountains at a height of about 3000 feet above the sea. This remains throughout the whole day, and casts a gloom upon the mountain scenery; but usually during the night this cloud clears away, and at sunrise the highest peaks are frequently visible. Soon after sunrise, however, the clouds form again, and the same state of things succeeds. This cloud is some 3000 to 4000 feet in thickness, or extends to a height of 7000 feet above the sea, and from the lower portions of Teneriffe (and also of the other islands) obscures all view of the highest peaks of the mountain-tops. Above 7000 feet a wind constantly blows from the south-west, overlaying the north-east trades—a wind nearly destitute of moisture. Thus it frequently happens that the

Peak of Teneriffe is visible at a distance out at sea though obscured to those on the island. The same phenomenon takes place in the other islands where the mountains are high. During the months of July, August, and September, and also occasionally during winter, no clouds appear on the mountains.

The botanical features of the islands are hardly what might have been expected from their southerly position. A large portion of the plants are either European or closely allied to European species; but there are others, such as the euphorbias and laurels, widely differing from any thing now existing on the neighbouring continent. The vegetation, especially of the Canaries, may be divided into zones. Beginning from the seashore, we get the remarkable *Euphorbia canariensis* (which, as its name implies, is peculiar to this group), together with other species of the same genus. A considerable portion of the land has now been cleared and brought under cultivation, and produces cochineal, the chief export product of the islands. At the height of about 3000 feet, or where the clouds caused by the trade winds commence, the laurel forest begins, and extends upwards for some 3500 feet; in this cloudy zone everything is saturated with moisture, fostering the fine laurel forest and grand ferns that abound there. Much of the forest has now been destroyed by the improvident inhabitants for fuel and other purposes; but the stumps of the old trees still indicate its former extent. In some few places, where the cutting of trees has been prohibited, one can form some idea, from the grandeur and size of the til and laurel trees, of the character these forests once possessed. Such are the forests of Tacaronte and Taganana in Teneriffe. Above the laurels, or at about 6000 feet above the sea, comes a belt of tree heath (*Erica arborea*). This again is succeeded by a forest of pine trees (*Pinus canariensis*), which towards its upper margin become stunted. Finally, at about 9000 feet there remains nothing but retama (*Cytisus nubigenus*), which also is peculiar to these islands. Beyond the retama vegetation ceases, and nothing but ashes and lava rocks remain, there being no trace, as on European mountain-tops, of any thing like an alpine flora.

These islands are much frequented by Petrels and other oceanic wanderers; and there are three places especially where they breed—namely, the Desertas, some rocky uninhabited islands about thirty miles to the eastward of Funchal, the Salvages, situated nearly midway between Madeira and Gran Canary, and the small island of Allegranza to the northward of Lanzarote. Being in Madeira in the breeding-season, I determined on making an expedition to the Desertas, and for this purpose chartered a large half-decked fishing-boat with the requisite crew, and laid in a supply of provisions sufficient to have lasted for a week. It was a beautiful morning when I started, and the weather appeared settled, and I had congratulated myself on the prospect of making a good collection of birds and eggs. In about five hours we reached Châo; but the breeze had freshened considerably, and the sailors intimated that there would be some difficulty in landing, as there is no beach on which to run the boat, and a heavy surf was beating upon the rocks. They managed, however, to bring the boat round into a small bay which was partly sheltered from the wind; and having let go an anchor from the stern to prevent our drifting upon the rocks, two of the men jumped into the water and swam ashore, each with the end of a rope in his hand, which, as soon as they landed, they made fast to the rocks, thus securing the boat from three different points. They then hauled the boat in close to the rocks, and we scrambled ashore and set to work at once searching for birds and eggs. There were only a few pairs of Gulls and Terns flying about, and nothing like the number of sea-birds I had been led to expect. We found plenty of Bulwer's Petrels sitting on their eggs, which were in holes or under rocks, and usually about as far in as one could reach with one's arm. They build no nest, but lay their eggs on the bare rock. I did not find more than one egg in each nest. I secured several birds and eggs, and kept some of the former alive. It is curious to watch them crawling along the ground; for they cannot fly unless they get to the edge of a rock; they waddle along on their feet, and, when they come to a steep place, use the sharp-pointed hook of their beaks to draw themselves up with. They seem to dislike the light, and hide themselves under a rock or crawl into a hole as soon as possible; I never saw one of this species flying about in the daytime, though some of the smaller ones are common enough. With some difficulty I afterwards scrambled up to the top of the cliff, which is some height above the sea and, being volcanic, crumbled away under one's foot and made the hold insecure. On reaching the top I found it to be nearly flat and covered with cinders; a few weeds were the only plants. Here there were numbers of Titlarks (*Anthus bertheloti*), and I shot several specimens. I had only seen two in Madeira. There were also flocks of Canaries and Linnets. Having spent about four hours on the island, we got into the boat again, intending to go on to Deserta Grande, which, as its name implies, is the largest of the islands, and is said to be a more favourite breeding-place for Petrels. As soon, however, as we got outside of our sheltered bay we found the sea had risen considerably; and a stiff breeze was blowing, causing such a heavy surf that the sailors said we could not safely go near the island. However, I made them try, and we went as near shore as we dared; but we found it quite impossible to land; so, having got all I could from Châo, we started back again for Madeira. On clearing the point of the island the wind was dead against us, and we were obliged to tack, in doing which, on two occasions, we shipped so much water that nearly all my birds and eggs were washed overboard and the boat almost swamped. It took us about fourteen hours to return to Madeira; and we were glad enough to land at St. Cruz at 2 o'clock next morning, thoroughly drenched, and with our boat half full of water. I would advise future travellers who may undertake the same expedition not to go in a smaller vessel than a good schooner. There would not be much difficulty in hiring one at Madeira, as there are several which sail to Porto Santo and other islands. The fishing-boats are not of a build to stand rough weather; and sometimes, as on this occasion, the wind springs up very suddenly.

I was told that a few years ago that an Englishman had landed on Deserta Grande to shoot sea-birds, and that while he was ashore it came on to blow so hard that the boat was obliged to return for safety to Madeira without him, and it was three days before he could be rescued, as it is impossible to land in heavy weather.

A party of sailors go annually to the Salvages for the fishing, and spend some months camped out on these islands. I was told that they also collect and salt large quantities of the sea-birds which resort there to breed, and bring them home preserved in barrels. They were there when I was in Madeira; so I could not gain any information from them about the birds of those islands.

I left Madeira for England a few days after my trip to the Desertas, so had not another opportunity of revisiting them.

I collected a considerable number of birds' skins in Madeira and the Canaries, in the latter group principally from the island of Teneriffe. These, since my return home, I have carefully compared with European examples of the same or most nearly allied species, and also with my Azorean specimens.

In the following list I have marked those birds I observed myself with a dagger (†); in other cases I have given the authority for their admission. It will be seen that there are several species I did not meet with. This is to be accounted for by my comparatively short stay, and also by the fact of my being able to visit only some of the islands.

1. †NEOPHRON PERCNOPTERUS (Linn.).

Neophron percnopterus, W. & B. Orn. Can. p. 5; Bolle, J. für Orn. 1854, p. 448, and 1857, p. 268.

Cathartes percnopterus, Vern. Harc. Ann. & Mag. Nat. Hist. 2nd ser. 1855, xv. p. 437.

Common in all the Canarian group, where some few pairs may usually be seen flying over the towns or large villages at a considerable height. I once saw fourteen together near Laguna, in Teneriffe, feeding on the carcass of a dead animal; they were so gorged that they took but little notice of me, and allowed me to approach quite close before they flew off. They breed in the rocks in the mountains of Teneriffe, and most probably also in the other islands of the Canarian group. I have a fine coloured egg taken from a nest in a ravine near Chasna in the highland of Teneriffe; it was brought me by a countryman, and was quite fresh. He told me that he saw the old bird fly from the nest, which he said was quite low down the cliff and easy of access.

Vernon Harcourt mentions this Vulture as occurring occasionally in Madeira. I never heard of it in the Azores, nor do I believe it ever occurs there.

2. FALCO PEREGRINUS, Linn.

Falco peregrinus, W. & B. Orn. Can. p. 5; Bolle, J. für Orn. 1854, p. 449, and 1857, p. 270.

I never met with this bird, though both Berthelot and Bolle say it is found in some of the Canaries; Vernon Harcourt does not mention it in his list of the resident birds of Madeira.

3. FALCO SUBBUTEO, Linn.

Falco subbuteo, W. & B. Orn. Can. p. 6; Bolle, J. für Orn. 1854, p. 449; Vern. Harc. Ann. & Mag. Nat. Hist. 2nd ser. 1855, xv. p. 437.

Bolle omits this species in his second paper on the Canary-Island birds, though in his first he says the Hobby is not unfrequently met with in the eastern islands, where its favourite food is the Skylark (*Alauda arvensis*). I never saw it myself. MM. Webb and Berthelot say that it is to be found throughout the archipelago. In Madeira it is a straggler.

4. TINNUNCULUS ALAUDARIUS (Gm.).

Falco tinnunculus, L.; W. & B. Orn. Can. p. 6; Bolle, J. für Orn. 1854, p. 449, and 1857, p. 272; Vern. Harc. Ann. & Mag. Nat. Hist. 2nd ser. 1855, xv. p. 437.

The Kestrel is exceedingly common in both Madeira and the Canaries, where it feeds principally upon lizards, which are very numerous. I secured a good series of specimens of both sexes and various ages. The mature females assume a grey tail at the end of the first year, but, unlike the males, this is always crossed with narrow bars. The male appears to get the grey tail at the same age. The plumage of the young birds is remarkably dark. It breeds in holes in the cliffs; and I have seen as many as twelve or fifteen pairs that had nested in the same ravine, where they appear not to interfere with each other.

The characters I have briefly drawn attention to above distinguish the Kestrel of Madeira and the Canaries from ordinary European specimens. Similar peculiarities appear in the Kestrels found in Japan, Nepal, and Abyssinia, when compared with European examples; but I am unable to detect any really tangible points of difference between specimens from these widely separated localities. A larger series of skins may throw more light upon this matter; but present want of materials compels me to leave it *sub judice.* It is not improbable that the bird from West Africa, described by Swainson (Birds of W. Afr. i. p. 109) as *Falco rufescens,* may prove to be identical with the Kestrel from these islands; so that, if it be sufficiently distinct from the European bird, Swainson's name can be used for it.

5. †MILVUS ICTINUS, Sav.

Falco milvus, Linn.; W. & B. Can. Orn. p. 7; Bolle, J. für Orn. 1854, p. 449.

Milvus regalis, Bolle, J. für Orn. p. 270.

One of the most common of the Raptores in Teneriffe and other islands of the group, where it is stationary. It may be seen flying over any of the large villages, and is always on the look-out for poultry, amongst which it has the reputation of being very destructive, whence it is the universal enemy. Notwithstanding this, I failed to procure a specimen for my collection, though it is to be seen everywhere.

6. †HALIAËTUS ALBICILLA (Linn.).

Falco albicilla, Lath.; W. & B. Orn. Can. p. 6; Bolle, J. für Orn. 1854, p. 449.

Webb and Berthelot do not seem to have observed this Eagle, though Dr. Bolle says that he met with it in the island of Lobos in May 1864 in some numbers. He also mentions it as a coast species in Teneriffe. In the month of April I frequently watched a pair of these birds three or four miles to the eastward of Orotava, near the coast. They frequented a high, inaccessible cliff over the sea, where I suspect they had a nest, though it was impossible to ascertain the fact. The birds were very wary, and I could not get close to them; yet, as I had several opportunities of observing them with my glasses, I have no doubt about the species. I never met with it elsewhere amongst the islands; and it is not recorded from Madeira.

7. †Buteo vulgaris, Lacép.

Falco buteo, Linn.; W. & B. Orn. Can. p. 8; Bolle, J. für Orn. 1854, p. 449; Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 437.

Buteo vulgaris, Ray; Bolle, J. für Orn. 1857, p. 270.

The most common of all the larger birds of prey in the Azores, Madeira, and the Canaries. I, unfortunately, did not procure specimens from the last two groups of islands, where it chiefly frequents the more wooded parts. The Azorean birds I have are very light-coloured, and resemble more the southern form of this Buzzard (*Buteo desertorum*). From a distance the birds I saw in Madeira and the Canaries did not appear to me to belong to this race, being as dark as common European specimens; but as I did not get examples, I cannot determine this point with certainty.

8. †Accipiter nisus (Linn.).

Falco nisus, Linn.; W. & B. Orn. Can. p. 7; Bolle, J. für Orn. 1854, p. 449; Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 437.

I believe this species is found sparingly throughout all the Canaries. The only specimen I obtained was that of a very old male in fine plumage, which I shot near Orotava in the month of April. I saw it also occasionally in other parts. Bolle says it is numerous in Teneriffe and Gran Canary, and that it does not migrate.

9. Circus cineraceus (Mont.).

Falco cineraceus, W. & B. Orn. Can. p. 8; Bolle, J. für Orn. 1854, p. 450.

Inserted on the above authorities. I did not observe it.

10. †Asio otus (Linn.).

Strix otus, W. & B. Orn. Can. p. 9; Bolle, J. für Orn. 1854, p. 450, and 1857, p. 274.

Dispersed through the Atlantic islands, but nowhere abundant. It frequents chiefly the deep shaded ravines, and is consequently seldom seen. I procured a very young specimen in Fayal, one of the Azores, and I also saw an adult bird that had been killed in the forest of Taganana in Teneriffe. It is also occasionally found in Madeira, where it probably breeds. I saw a stuffed bird of this species at Funchal. It had been killed in the island.

11. †STRIX FLAMMEA, Linn.

Strix flammea, W. & B. Orn. Can. p. 8; Bolle, J. für Orn. 1854, p. 450, and 1857, p. 274; Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 437.

Like the preceding species, the Barn-Owl is thinly scattered throughout the three Atlantic groups of islands. Examples I have seen from the Azores and Canaries are rather darker-coloured than continental specimens, but in other respects they do not differ.

12. †PICUS MAJOR, Linn.

Picus major, W. & B. Orn. Can. p. 26; Bolle, J. für Orn. 1854, p. 462.

Picus numidicus?, Bolle, J. für Orn. 1857, p. 320.

This Woodpecker is tolerably common amongst the pine forests of Teneriffe in the high mountains. I also saw several in the retama bushes in the Cañadas. Bolle says that *P. numidicus* is probably the Canarian species, and not *P. major*. I procured a few specimens from near Chasna (the locality where he mentions having seen it) which undoubtedly are identical with the northern race. It also inhabits Gran Canary and Palma, and possibly some of the other islands of the group. This widely distributed species is not mentioned by Vernon Harcourt as occurring in Madeira; and if Mr. Brewer was not mistaken, *P. minor* is the only Woodpecker found in the Azores; but I think it more than possible he may have mistaken the lesser for the greater species.

P. numidicus, to which species Dr. Bolle seems inclined to refer the Canarian bird, has a conspicuous red pectoral band, rendering it easily distinguishable from *P. major*. There can be no doubt that the Woodpecker I am now mentioning belongs to the latter species, though the contrary might be surmised from the geographical position of the islands. Both are well figured in Sharpe and Dresser's 'Birds of Europe,' though they do not give positive information as to which species is found in the Canaries.

13. †Alcedo ispida, Linn.

Alcedo ispida, W. & B. Orn. Can. p. 25; Bolle, J. für Orn. 1854, p. 461, & 1857, p. 319; Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 437.

I am not sure that this bird has any real right to be included amongst the resident species of the Canaries, though it is frequently met with about the coasts of the eastern islands. I do not believe it breeds there. I saw it once or twice near the port of Orotava, in Teneriffe, in the middle of April. It is given by Vernon Harcourt in his list of occasional visitors in Madeira.

14. †Upupa epops, Linn.

Upupa epops, W. & B. Orn. Can. p. 26; Bolle, J. für Orn. 1854, p. 461, & 1857, p. 319; Vern. Harc., Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 437.

Inhabits all the islands of the Canarian archipelago, where it breeds. It is said to be migratory, arriving early in spring and taking its departure again in autumn. It is very tame, and may frequently be seen about Laguna, in Teneriffe, perched upon a wall at the side of the road, erecting and lowering its crest as any one passes, without showing any signs of alarm. Vernon Harcourt mentions its casual occurrence in Madeira, on the authority of Mr. Lowe; and I saw a single example which had been killed in Terceira, one of the Azores, some time previously Bolle says that, though the greater number migrate, a few individuals remain in the Canaries throughout the winter.

15. Caprimulgus ruficollis, Temm.

Caprimulgus ruficollis, W. & B. Orn. Can. p. 24; Bolle, J. für Orn. 1854, p. 461, & 1857, p. 323.

Mentioned by Webb and Berthelot as of accidental occurrence, though Bolle seems to consider it a regular summer visitant. The latter observer says it breeds in Lanzarote and Fuerteventura, and therefore ought to be included amongst the recognized birds of the Canaries. It is probable it does not extend to the western islands. I did not see it myself. Vernon Harcourt, on the authority of Mr. Hinton, gives *C. europæus* as an occasional straggler in Madeira.

16. †Cypselus pallidus, Shelley.

Cypselus apus, Linn. W. & B. Orn. Can. p. 23; Bolle, J. für Orn. 1854, p. 460, & 1857, p. 322.

Cypselus murarius, Temm. Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 437.

The distinction between this species and *C. apus* was first pointed out by Capt. Shelley, and described in 'The Ibis' (1870, p. 445). He says it is extremely abundant in Egypt, and arrives in February, and that he never saw the common Swift, though he kept a sharp look-out for it. My specimens from Madeira and the Canaries agree with his Egyptian types. It is easily distinguished on the wing, by its much lighter colour and whiter throat. It is rather remarkable that in Madeira both this and the next species are said to be stationary throughout the year, while in the Canaries they leave in autumn and return in March. *C. pallidus* appears usually a few days before *C. unicolor*. It breeds, both in the Canaries and Madeira, in cliffs.

17. †Cypselus unicolor, Jardine.

Cypselus unicolor, W. & B. Orn. Can. p. 24; Bolle, J. für Orn. 1854, p. 460, & 1857, p. 322; Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 437.

This appears equally common with the last-named species, both in Madeira and the Canaries, where it frequents chiefly the high land, while its congener is most abundant near the sea, whence the latter has received the name of "Andorhina do mar," while the former is called "Andorhina da serra." I saw several about the Cañadas, skimming over the retama bushes, which were then in full bloom and attracted numerous insects. It builds in holes in the cliffs, where it nests in societies. I also found a small colony nesting in a cliff on the north side of Madeira, not far from the sea.

18. †Hirundo rustica, Linn.

Hirundo rustica, W. & B. Orn. Can. p. 23; Bolle, J. für Orn. 1854, p. 460, & 1857, p. 322; Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 437.

I found the Swallow breeding abundantly in Madeira and Canaries, though both Webb and Berthelot, and Bolle, say it only occurs on passage in the Canaries. Vernon Harcourt records it amongst his list of stragglers in Madeira; but, the year I was there, there were numbers about St. Anna, on the north side, in June. I cannot say whether it is stationary in Madeira and has been overlooked; but in Teneriffe I was told it arrived soon after the Swift; these latter birds, however, are not migratory in Madeira.

19. †Hirundo urbica, Linn.

Hirundo urbica, Bolle, J. für Orn. 1854, p. 460; Vern. Harc. Ann. & Mag. Nat Hist. ser. 2, 1855, xv. p. 437.

This species is not recorded as a resident by other observers, and perhaps is only accidental; but as I saw a pair that had a nest at St. Anna in Madeira, I include it. I did not meet with it in the Canaries or elsewhere. Bolle says he saw swarms of them at Oliva, in Fuerteventura, in April 1852. He remarks that they disappeared as quickly as they came.

20. Muscicapa atricapilla, Linn.

Muscicapa atricapilla, W. & B. Orn. Can. p. 11; Bolle, J. für Orn. 1854, p. 452.

This bird is admitted into the Canarian list on the authority of Webb and Berthelot, who give as its habitat the island of Teneriffe, where, however, I never met with it.

21. Lanius ——, sp.?

Lanius excubitor, Linn.; W. & B. Orn. Can. p. 10.; Bolle, J. für Orn. 1854, p. 452.

Lanius meridionalis; Bolle, J. für Orn. 1857, p. 274.

A Shrike is not unfrequent near the shore in the Canaries; Bolle says it builds in the *Euphorbia canariensis*, and that the inhabitants encourage it, as it feeds upon the Gekko, an object of fear amongst the natives, who believe it to be poisonous. I did not procure specimens, so cannot say whether Bolle is right in his second paper in ascribing it to *L. meridionalis* instead of *L. excubitor*. Sharpe and Dresser (Birds of Europe) think the species will prove to be *L. algeriensis*.

22. †Turdus merula, Linn.

Turdus merula, W. & B. Orn. Can. p. 12; Bolle, J. für Orn. 1854, p. 453, & 1857, p. 278; Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 437.

Found in the Canaries, Madeira, and the Azores, where it is very common in all damp places. Bolle says it is not found in Lanzarote, nor in Fuerteventura. In Gran Canary and Teneriffe it is seldom seen near the coast; but in the tree-heath- and laurel-district it is exceedingly abundant.

23. Parus major, Linn.

Parus major, W. & B. Orn. Can. p. 17; Bolle, J. für Orn. 1854, p. 455, & 1857, p. 284.

Seems to be found in the pine-forests of Teneriffe and Palma; it however escaped my observation, and I fancy it cannot be common.

24. Parus teneriffæ, Less.

Parus teneriffæ, Sharpe & Dresser, Birds Eur.

Parus ultramarinus, Bonap.

Parus violaceus, Bolle, J. für Orn. 1854, p. 455.

Parus cæruleus, Linn.; W. & B. Orn. Can. p. 18; Bolle, J. für Orn. 1857, p. 284.

This beautiful little Titmouse is common throughout the Canaries, and is found from the sea-level up to a height of from 5000 to 6000 feet. Its habits much resemble those of its ally *P. cæruleus*. It nests either in a hole in a wall, or in a rotten tree. A pair of these birds had a nest in the wall of a banana-garden just beneath my window in Orotava. The young birds were already hatched when I arrived there on the 6th of April. I procured several specimens in Teneriffe, which are identical with Algerian examples.

Sharpe and Dresser, in their article on this species, in their 'History of the Birds of Europe' mention that there is "one difference which is noticeable" between Algerian and Canarian skins. "The island birds have an almost entire absence of the white tips to the greater wing-coverts and secondaries." On looking over all my series, I do not find this character constant to the birds of either locality. Mr. Dresser has since shown me an Algerian bird in which these markings are quite as faint as in any of my Canarian specimens; so the birds must be considered to belong to the same species.

25. Troglodytes parvulus, Koch.

Troglodytes europæus, Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 437.

Sylvia troglodytes, Bolle, J. für Orn. 1854, p. 454.

Webb and Berthelot doubt the occurrence of the Wren in the Canaries; Bolle, however, says that it is found there; I never saw it.

26. †Regulus maderensis, Vern. Harc.

Regulus ——? Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, vol. xii. p. 58 (1853).

Regulus maderensis, Vern. Harc. P. Z. S. 1854, p. 153; Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 432.

This pretty little Goldcrest is not uncommon in the higher parts of Madeira, where it frequents chiefly the tree heath (*Erica arborea*) and the arbutus (*Clethra arborea*), and, like our Golden-crest, feeds upon insects it picks from the leaves. It is not easy to procure specimens, as the brush-wood is so thick, and when shot at from a close distance a bird is blown to pieces and spoiled for preserving. I also found it in a fir-wood a little above St. Anna, on the north side of the island. This was the only place I met with it low down.

27. †Regulus cristatus, Linn.

Regulus ——?, Bolle, J. für Orn. 1854, p. 455.

"*Regulus maderensis,* Vern. Harc.;" Bolle, J. für Orn. 1857, p. 284.

Bolle mentions a Canarian species of *Regulus.* He says that he did not obtain specimens. I found it in Taganana, and in the highlands of Teneriffe, in the laurel-forests and also amongst the tree heath. My examples cannot be distinguished from the European Golden-crest. In Madeira it is represented by the preceding species, while in the Azores, again, we find *R. cristatus,* but always having the legs and beak rather larger than British or Continental specimens.

28. Phyllopneuste rufa (Lath.).

Sylvia rufa, Bonap.; Bolle, J. für Orn. 1857, p. 284.

Common in Teneriffe, Palma, and Gran Canary, where it chiefly inhabits the upper and heathy districts, though I shot some specimens in a garden at Orotava. They are identical with our Chiff-chaff. I have six or seven skins from Teneriffe.

29. Pyrophthalma melanocephala (Gm.).

Sylvia melanocephala, W. & B. Orn. Can. p. 14; Bolle, J. für Orn. 1854, p. 454, & 1857, p. 282.

Webb and Berthelot found this species in Teneriffe; and I met with it in a garden in Palma and in Gran Canary.

30. Sylvia cinerea, Bp.

Sylvia cinerea, W. & B. Orn. Can. p. 14; Bolle, J. für Orn. 1854, p. 454.

Found, according to Webb and Berthelot, and Dr. Bolle, throughout the Canarian archipelago where there are thorn-bushes. I failed to procure specimens of either this or the two following species.

31. †Sylvia atricapilla, Linn.

Sylvia atricapilla, W. & B. Orn. Can. p. 14; Bolle, J. für Orn. 1854, p. 453, & 1857, p. 280; Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 437; Jard. & Selby, Illus. of Orn. t. 94; Heineken, Zool. Journ. v. p. 75.

This bird is very common in the Canaries, Madeira, and the Azores, and is much prized by the inhabitants for its singing-qualities. It is caught in considerable numbers and kept in cages, and is easily domesticated. In both Madeira and the Azores a variety is not unfrequently found, having the black on the head extending as far as the shoulders and round under the throat. This dark variety was described by Jardine and Selby as a species, in 'Illustrations of Ornithology,' under the name of *Curruca heinekeni.* I have seen some eight or nine examples in cages; and one of them had the black of the throat extending as far as the breast, where it was gradually shaded off beneath into a slaty grey. The back also of this individual was darker than that of an ordinary Black-cap. I never saw this variety wild. A few caged specimens are usually to be seen in some of the stores of Funchal, in Madeira. I could not ascertain that this singular variety occurs in the Canaries. They are said to interbreed with the common Black-cap. It is only in the male birds that this dark plumage occurs.

32. †SYLVIA CONSPICILLATA, Marm.

Sylvia conspicillata, Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 437.

This beautiful little Warbler seems to have escaped the notice of other ornithologists who have visited the Canaries; it is not, however, unfrequently to be seen in the neighbourhood of Orotava, where it frequents thick bushes, and into which it plunges at the approach of danger. I saw it also near the Paul da Serra, in Madeira. Vernon Harcourt includes it in his list from this latter island.

33. SYLVIA SUBALPINA, Bonelli.

Sylvia passerina, Temm.; W. & B. Orn. Can. p. 15; Bolle, J. für Orn. 1854, p. 454, & 1857, p. 282.

A native of Teneriffe, where Berthelot found it nesting.

34. CALAMODYTA AQUATICA (Lath.).

Sylvia aquatica, Lath.; W. & B. Orn. Can. p. 13; Bolle, J. für Orn. 1854, p. 453.

Said by Webb and Berthelot to inhabit Gran Canary, where, however, it cannot be common, as there are few places in the island adapted to its habits. I did not see it during my short visit there.

35. †ERITHACUS RUBECULA (Linn.).

Sylvia rubecula, W. & B. Orn. Can. p. 16; Bolle, J. für Orn. 1854, p. 454. Vern. Harc. Ann. & Mag. N. H. ser. 2, 1855, xv. p. 437.

Erythacus rubecula, Bolle, J. für Orn. 1857, p. 283.

The Robin is met with in the Canaries, Madeira, and the eastern Azores. It is rather remarkable that birds from the last-named islands agree with the South-European race, which is paler in colour than British or North-European specimens, whilst those from Madeira and the Canaries are identical with the darker northern form. Like the Blackbird, this species is seldom found near the coast in Teneriffe and Gran Canary; but at an elevation of from 2000 to 8000 feet above the sea it is very common.

36. RUTICILLA PHŒNICURA (Linn.).

Ruticilla phœnicura, W. & B. Orn. Can. p. 15; Bolle J. für Orn. 1854, p. 454, and 1857, p. 283.

Also said by Berthelot to inhabit Teneriffe, where it builds in the walls.

37. PRATINCOLA RUBICOLA (Linn.).

Pratincola rubicola, W. & B. Orn. Can. p. 13.

Saxicola rubicola, Bolle, J. für Orn. 1854, p. 453, and 1857, p. 279.

Webb and Berthelot met with this bird at Mercedes, in Teneriffe, where, however, they say it is rare. I did not observe it; nor is its occurrence recorded by Vernon Harcourt in Madeira.

38. †MOTACILLA SULPHUREA (Bechst.).

M. boarula, Bolle, J. für Orn. 1857, p. 286; Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 437.

M. flava? W. & B. Orn. Can. p. 16; Bolle, J. für Orn. 1854, p. 455.

This beautiful species is exceedingly common in all three of the Atlantic archipelagoes; wherever there is a pool or stream of water, a pair of them are sure to be seen, actively engaged in catching the insects which abound in such localities. Webb and Berthelot, and also Bolle, in his first paper on the birds of the Canaries, have mistaken it for *M. flava,* though the latter has corrected this error in his second paper, as quoted above.

39. †ANTHUS BERTHELOTI, Bolle.

Ibis, 1862, p. 343; J. f. Orn. 1862, p. 357.

A. trivialis, Linn.; W. & B. Orn. Can. p. 16; Bolle, J. für Orn. 1854, p. 455.

A. pratensis, Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 437.

A. campestris, Bolle, J. für Orn. 1857, p. 288.

The distinction between this species and its continental allies, with which it had previously been confounded, was pointed out by Dr. Bolle in 'The Ibis' for 1862, p. 343, where he describes it under the above specific name. I procured several examples of it in Teneriffe, where it is exceedingly common. I also saw it in the islands of Palma and Gran Canary, though I failed to procure specimens from either. On the Desertas it is exceedingly common, and I shot several specimens on the smallest island; but unfortunately they were all washed overboard in returning, together with the rest of the things I collected there. *A. bertheloti* takes short flights, like *A. pratensis*. It is usually very tame, and runs along the ground, not caring to take flight, whence it has received the name "Caminero" in the Canaries, and "Corre-de-Caminho" in Madeira.

[To be continued.]

XXI.—*Observations on the Systematic Position of the Genera* Peltops, Eurylæmus, *and* Todus. By P. L. SCLATER, M.A., Ph.D., F.R.S.

THE genus *Peltops*, containing the single species *P. blainvillii* of New Guinea, has been usually referred to the Eurylæminæ, or Broad-bills, and the group thus formed united in the same family with the Rollers (Coraciadæ), the Todies (Todidæ), and the Motmots (Momotidæ), or at all events placed in their immediate neighbourhood*. Several errors are, in my opinion, embraced in this classification.

In the first place, *Peltops* has nothing whatever to do with the Eurylæmidæ, being a truly Muscicapine form allied to *Monarcha* and *Machærirhynchus*, as the most casual examination of its structure at once shows. The mistake, no doubt, comes from the somewhat exaggerated form of the bill in *Peltops*, and from its general coloration resembling that of *Cymbirhynchus*. The rarity of *Peltops* has prevented the error from being discovered. On examining the wing of *Peltops* it will be seen that the first primary is short or "spurious," as in all the true Oscines, when it exists at all. In *Cymbirhynchus* there are ten fully formed primaries. There is also a conspicuous difference in the size of the feet in the two forms, these organs being strong and thick in *Cymbirhynchus,* while they are feeble and weak in *Peltops,* as in other Muscicapidæ. The relegation of *Peltops* to the Muscicapidæ also removes an anomaly in geographical distribution, it being obviously strange that an otherwise exclusively Indo-Malayan type, such as the Eurylæmidæ, should have a single outlier in New Guinea.

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* In Mr. G. R. Gray's 'Hand-list of Birds' (i. p. 319) *Peltops* is correctly placed in the Muscicapidæ.

Next, as regards the Eurylæmidæ themselves. After the elimination of *Peltops,* this group contains the genera *Psarisomus, Serilophus, Eurylæmus, Corydon, Cymbirhynchus,* and *Calyptomena,* all restricted to the Indian region. Dr. Jerdon (Birds of India, i. p. 235) has given us a suggestive epitome of the various opinions that have prevailed as to the position of this family in the 'Systema Naturæ.' He says:—"The real situation of the *Eurylaimi* in a natural disposition of birds is somewhat uncertain. Van der Hoeven places them at the end of the Caprimulgidæ; Gray as a subfamily of Coraciadæ; and Bonaparte also locates them next to the Rollers. Horsfield joins them with the Todies, to form a distinct family of the Fissirostres. Swainson removes them from this tribe to the Fly-catchers. And Blyth and Wallace class them with the Pipridæ or Ampelidæ."

I am not aware that any one of the authors whose discordant opinions are thus quoted has examined any part of the osseous structure of the Eurylæmidæ, without a knowledge of which it is of course impossible to come to any certain conclusion as to their true position.

On turning for information on this subject to Blanchard's excellent (but, alas! incomplete) memoir on the Osteology of Birds*, we find that the sternum of *Eurylæmus* is truly Passerine, and "resembles that of the Swallows." An examination of a sternum of *Eurylæmus javanicus* in Lord Walden's collection quite confirms Professor Blanchard's statement. As will be seen by the outline given herewith (fig. 3), the sternum of *Eurylæmus* has the characteristic form of the true Passeres, and is quite different from that of *Coracias* (fig. 4) and Todus (fig. 1), with which it has been most unnaturally associated.

As to the exact place to be assigned to *Eurylæmus* and its allies in the great Passerine series, that is a subject for more minute investigation. I believe, however, that Mr. Wallace will probably be found to be correct in considering the Eurylæmidæ the paleogean representatives of the neotropical Cotingidæ*.

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* Ann. d. Sc. Nat. Zool. xi. p. 110 (1859).

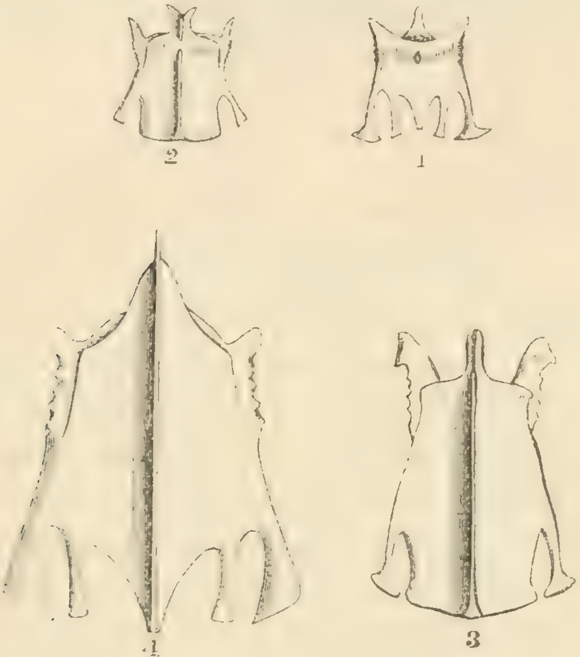

Fig. 1. Lower surface of sternum of *Todus.*
,, 2. Upper ,, ,, *Todirostrum.*
,, 3. Lower ,, ,, *Eurylæmus.*
,, 4. Upper ,, ,, *Coracias.*

Having mentioned *Todus,* I will now add a few remarks to express my surprise at this well-marked type being still confounded by some systematists† with the Tyrannine genus *Todirostrum.* One glance at the sterna of these two little birds (see figs. 1 and 2) is quite enough to show that they have nothing to do with one another. *Todus*‡ is closely allied to *Alcedo,* and still more to *Momotus,* its nearest living ally being certainly the diminutive Motmot called *Hylomanes momotula.* *Todirostrum,* on the contrary, is a true Tyrannine form, and belongs to the great Passerine series. I submit, therefore, to the author of the next classification of birds, and to systematists in general who treat of these forms :—

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* See Ann. Nat. Hist. ser. 2, vol. xviii. p. 199.

† Cabanis, in Tschudi's 'Fauna Peruana,' Aves, p. 162, and Wiegm. Arch. xiii. pt. 1, p. 257. See also Carus, Handb. d. Zool. i. p. 265.

‡ *Cf.* Blanchard, *op. cit.* p. 110.

1. That *Peltops* should be referred to the family Muscicapidæ.
2. That the Eurylæmidæ should be assigned to the order Passeres.
3. That the Todidæ should be constituted a family of Coccygomorphæ in the immediate neighbourhood of the Momotidæ.

XXII.—*On a new* Sylvia *from India.*

By W. E. Brooks, C.E.

MELIZOPHILUS STRIATUS, sp. nov.

Description. Above light brownish-grey, streaked on the head, as far as the shoulders, with dark brown narrow streaks; a pale rufous-brown broad supercilium; the cheeks and ear-coverts are also of this colour, which extends down the sides of the neck and breast, becoming very pale and diluted under the wings and on the flanks. Wings light brown; the edges of quills and coverts greyish. Tail a very much darker or blackish brown; the outer feather on each side is rather lighter and is tipped with white; the tail-feathers are cross-rayed, particularly the outer ones. Lower surface of body, except sides of neck, breast, and flanks, white, with narrow brown streaks from chin to upper breast. These streaks are well defined in one specimen, and faint in another. Lining of wing, and edge of the same, reddish white. Bill dark brown, except basal half of lower mandible, which is dull brownish-orange. Legs and feet yellowish brown, claws brown.

Length 4·55 to 4·8 inches; wing 1·93 to 1·95; tail 2·14 to 2·33; tarsus ·77 to ·82; bill at front ·35, from gape ·46. The bill is excessively like that of *Melizophilus provincialis.* The wing also resembles that bird's, except that the first primary is larger in proportion. Tail of similar form, but proportionally shorter; the outer feathers are ·35 shorter than the central ones.

Notwithstanding the differences I have noted, the general resemblance is so strong to *Melizophilus* that I have placed the species in that genus. The head is streaked, and so are the throat and breast; but I have a Dartford Warbler with small white streaks on the throat.

This bird was discovered by Capt. Cock, 30th P. N. Infantry, at Naoshera, in the Punjab, who says of it:—"Found in pairs among low stony hills; they are very restless, active little birds, and proportionately difficult to shoot.

The specimens I have from Capt. Cock were killed in the beginning of February.

Etawah, 20th February, 1872.

XXIII.—*On Three new Species of Birds from the Fantee Country.*

By R. B. Sharpe, F.L.S., F.Z.S., &c., and H. T. Ussher, H.B.M. Administrator to the Settlements on the Gold Coast.

The three species described in the present paper have been received by us from the forest country of Denkera, in the interior of Fantee, where they were procured by Mr. S. Thomas David Aubinn, a most intelligent native collector, whose notes on the habits of Fantee birds will be embodied in a subsequent communication.

Fam. TROGONIDÆ.

1. HAPALODERMA CONSTANTIA, sp. n.

Trogon narina, Hartl. Orn. W.-Afr. p. 263.

H. narinæ affinis, sed pulchrior, et tectricibus alarum purè canis nigro minutè vermiculatis, et rectrice extimâ omninò albâ dignoscenda.

Long. tot. 11·0, rostr. culm. 0·8, alæ 4·8, caudæ 6·0, tarsi 0·6 poll. angl. et dec.

Although, as might be expected, this new Trogon is very nearly allied to the well-known African species *H. narina*, its distinctness is shown by the four specimens which Aubinn has forwarded to us. It may be distinguished from the last-named bird by the clear greyish-white wing-coverts, while in the true *H. narina* the vermiculations are much larger and coarser, and there is always a shade of metallic green perceptible on these parts. The tail is much purer white, without any dusky shade on the base of the outer feather; and the underparts of the body are a fiery crimson, instead of being a beautiful rose-colour. We have compared a large series of African Trogons with these four Fantee specimens, and we find these differences quite constant. Mr. Gould, also, to whom we have shown our new bird, agrees with us as to its being an undescribed species.

This beautiful Trogon is named after Miss Constance Ussher.

Fam. NECTARINIIDÆ.

2. PHOLIDORNIS RUBRIFRONS, sp. n.

♂ suprà olivascenti-fuscus, pileo postico et tectricibus alarum ochraceo marginatis: dorsi plumis obsoletè olivaceo marginatis: remigibus et rectricibus fuscis, extùs olivaceo limbatis; fronte lætè coccineo: facie laterali pileo concolori, sed fulvo distincte maculatâ: subtùs omninò castaneus: rostro nigro: pedibus flavidis: long. tot. 4·0, culm. 0·45, alæ 2·0, caudæ 1·55, tarsi 0·65 poll. angl. et dec.

♀ omninò differt: supra brunnea, plumis indistincte ochraceo marginatis: fronte paullò rufescente tinctâ: subtùs lactescenti-alba, ubique brunneo ad apicem plumarum maculata.

Of all the peculiar forms which Africa produces, the little *Pholidornis rushiæ* has always been considered one of the most interesting; and the discovery of a second species of this genus is a noteworthy addition to the African avifauna. The scaly character of the plumage, which forms a striking feature in *P. rushiæ,* is here only preserved in the female; the male of our new species is a most beautiful little creature, remarkable for its varied plumage, being chestnut underneath with a bright crimson forehead.

Fam. STRIGIDÆ.

3. HUHUA SHELLEYI, sp. n.

H. maxima: suprà brunnea, fasciis obscuris brunneis ubique transnotata: tectricibus alarum et scapularibus, collo postico et tectricibus supracaudalibus conspicuè fulvo transfasciatis: plumis auricularibus longissimis brunneis: facie fulvescente, setis rictalibus nigris, genis et regione auriculari brunneo variis, scapis albidis: remigibus caudâque brunneis, suprà pallidè brunneo, subtùs fulvo transfasciatis: corpore toto subtùs fulvescente, latè albo, angustiùs nigro transfasciato: rostro flavido: long. tot. 23, alæ 16·5, caudæ 10·0, tarsi 2·9 poll. angl. et dec.

The measurements will show the great difference in size between this new species and *H. leucosticta,* of which it may be considered a gigantic edition. It much resembles the last-named Owl, which we have also received from Fantee, but is double the size at least; and the body underneath is more evenly barred with white, so that it does not show those great white blotches which induced Temminck to assign the name of *leucosticta* to its smaller representative. Mr. Gurney, who has seen our specimen, agrees that it is quite new to science.

This species is dedicated by us to Captain G. E. Shelley, with an ardent wish that the researches he is now prosecuting in the dangerous climate of Western Africa may be rewarded with the same success which has attended his well-known studies of bird-life in the less fatal and more accessible country of Egypt.

XXIV.—*New and forthcoming Ornithological Works, &c.*

Perhaps at no time since ornithology became a recognized science has so much activity been shown by ornithologists as at the present moment; for though there appears to be little movement in some countries which were once foremost in their contributions, these deficiencies are more than compensated by the energy displayed in others.

We propose to give a short account of some of the new publications that have come under our notice during the last few months, and also to announce to our readers a prospect of certain other works being shortly issued from the press. Besides these additions to ornithological literature, the works already mentioned in these pages have been making steady progress; and some, such as Sharpe's Monograph of the *Alcedinidæ* and Marshall's *Capitonidæ*, have been completed. At the same time the various journals of scientific societies open to such subjects abound with ornithological papers. As these latter are, or ought to be, in the hands of most of our readers, and as they will be referred to on a subsequent occasion, it is not our intention to draw special attention to them, but only to such publications as are not so readily accessible.

Several works on the birds of our own islands have recently made their appearance. The first number of a new edition of

Yarrell's History of British Birds, revised by Professor Newton*, was issued in June last; and up to now three parts have been published. It is needless for us to say that Mr. Newton has bestowed the greatest care in his revision of this standard work; and a glance at its pages will show how much has been added and altered, so as to incorporate all the most recent information into the text. The work is to be completed in about twenty-five parts, and illustrated by 600 engravings. We have only one complaint to make with reference to this important work, and that concerns the slow rate at which the parts are issued. In June last we were promised by the publisher the second part in August, and future parts on the 1st of each subsequent month. Part II. appeared in due time, but Part III. bears the date February 1872. At this rate of issue it will be five years at least before the final part is completed.

Mr. Robert Gray has recently completed his promised book on the birds of West Scotland and the Outer Hebrides †.

Mr. Gray tells us that he has been upwards of twenty years collecting materials for the present work. Its chief feature consists in the ample details given respecting the places where each species is found within the limits of the field chosen for the author's observations. In the case of stragglers, of which Western Scotland has received a very considerable share, the particulars in each instance are detailed, and in some cases a description of the stranger is added.

The method of treating such birds is in a somewhat unsettled state; and considerable hesitation is shown, though not by Mr. Gray especially, whether to admit such waifs and strays into our list as welcome additions or to exclude them as intruders. We ourselves think that no hard line can be drawn in either direction, but that outside the interests of local faunas there remains a much wider question, bearing upon the modification and extent of the distribution of species in general. In this light all instances of the occurrence of stragglers beyond their usual limits cannot be too frequently or too carefully recorded. The instances where species become established by accidental means may be few and far between; and, as a rule, stragglers obtain no foothold for the species to which they belong: but who can tell when the exception may take the place of the rule? We should have liked to have seen the usual range of many of the stragglers mentioned in this work given. For instance, there is nothing to show which of the four quarters of the globe *Tringa rufescens* and *T. pectoralis* inhabit. Such information, it is true, is easily obtained; but a few words in each case would have sufficed to impart much instruction to those whose opportunities of making references are limited.

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* History of British Birds, by the late William Yarrell. Fourth edition, revised by Alfred Newton. Parts I. II. III. (Van Voorst.)

† The Birds of the West of Scotland, including the Outer Hebrides, with occasional records of the occurrence of the rarer species throughout Scotland generally. By Robert Gray. 8vo, pp. 520. 1871 Glasgow (Thomas Murray & Sons).

Mr. Harting has lately published two works bearing upon ornithology*, but which hardly call for comment here. With regard to the first, we must confess that we put it down with a somewhat uneasy feeling that shore-shooting was hardly legitimate "sport;" and we trust it will never become popular. We admit the enjoyment of a good day's shooting; but whence comes our satisfaction? We sometimes suspect that the life-and-death necessities of old savage days have still something to answer for; and that what we now call the enjoyment of sport is an inheritance of the nature of an instinct, from long-past times, when successful or non-successful chase was a matter of the utmost moment, as involving the acquirement of a sufficiency of food, or the reverse, and its consequences. No such necessities now exist; and we should like to look forward to a time when birds will afford many of us a purer enjoyment than now, derived from watching their movements and habits, without taking their lives and harrying their nests. We do not really want "shore-birds" for food, and the requirements of science are soon satisfied; why then shoot them five or six at a shot?

In 'The Ornithology of Shakespeare'†, Mr. Harting has given a modern interpretation to most of the allusions to birds contained in Shakespeare's works. These notes are accompanied with suitable accessory matter, and the whole subject is worked up into a volume of 321 pages. Some nicely executed woodcuts are interspersed throughout the work, which is elaborated with great care, the paper and typography being all that could be desired.

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* Hints on Shore-shooting, with a chapter on skinning and preserving birds. By James Edmund Harting. London, 1871 (Van Voorst).

† The Ornithology of Shakespeare, critically examined, explained and illustrated. By James Edmund Harting. 8vo. London, 1871 (Van Voorst).

For a fuller explanation than that given by Mr. Harting of the well-known passage in Hamlet, "I am but mad north-north-west: when the wind is southerly I know a Hawk from a Heronshaw," see Mr. Newton's note in the fourth edition of Yarrell's British Birds, i. p. 57.

Messrs. Sharpe and Dresser have made a fair start with their History of the Birds of Europe*, and nine parts have been issued since March last (1871). There are several points which strongly recommend this work: in the first place, it is by no means dear for one containing quarto coloured illustrations. In the next, the authors seem to spare no pains to get together ample materials to enable them to verify the relationship of closely allied races by actual comparison of specimens. Notes and observations on habits, &c., are not only collated from every available source, but a quantity of new matter bearing on these points has been collected together. Descriptions of sexes, as well as of young in various stages of plumage are given very fully. At the risk of being called hypercritical, we must confess that it appears to us that the authors are displaying even too much zeal in their anxiety to lay before ornithologists all that has been written about each species rather than in sifting out the points having more important bearing on the subject. We should have preferred, for the sake of brevity, to have seen these points given in our authors' own words, rather than in long quotations from already published matter. We think, too, that where so much is brought forward it would have been of great service had the subjects been more carefully classified under headings, so as to facilitate reference to any particular subject. The descriptions are long, and we should have liked to have seen the salient characteristics of each species given, as in Sharpe's Monograph of the Alcedinidæ, in concise terms. It is true that plates do away with much of the immediate necessity of such diagnostic characters; yet their presence would have been an undoubted gain. These are minor matters, and are outweighed many times over by the real merits of the work, upon which no pains have been spared either in letterpress or plates. The authors have a long journey before them; but we do not doubt their industry and ability to accomplish all they have undertaken. We wish them every success.

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* A History of the Birds of Europe, including all the species inhabiting the Western Palæarctic Region. By R. B. Sharpe and H. E. Dresser. 4to. London. Parts I.–IX.

A Catalogue of the Birds of Europe, by M. Alph. Dubois*, has just reached us. A bare list of 575 European species are recognized, without including what M. Dubois considers "Varietates climaticæ." In dealing with these latter, the lines between so-called species and varieties have been drawn without much discrimination, and the author not unfrequently, as in the case of *Falco peregrinus*, *Strix flammea*, &c., travels far outside his limits to show, we suppose, the number of "varieties" into which those "species" are divisible. Stragglers are freely admitted to rank as European birds. M. Dubois pays no regard to an important rule of nomenclature respecting authors of generic names. Thus we find the first edition of Linnæus constantly quoted, Moehring, we might almost say of course, Barrère, 1745, Ray, 1713, and Aldrovandus, 1610–11! How often must it be repeated that the names of these authors have no meaning whatever in a binominal sense?

The second part of a new 'Fauna d'Italia' contains the commencement of an account of the Italian birds by Count Tommaso Salvadori†.

The first fasciculus, which is all that has yet reached us, includes 196 species belonging to the following orders of Count Salvadori's arrangement:—ACCIPITRES (diurni et nocturni); PICARIÆ (Picidæ, Yunginæ, Cuculinæ, Coraciidæ, Meropidæ, Alcedinidæ, Upupidæ, Caprimulgidæ, Cypselidæ); Passeres (Hirundinidæ, Muscicapidæ, Ampelidæ, Laniidæ, Paridæ, Certhiidæ, Troglodytidæ, Cinclidæ, and part of the Turdidæ).

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* Conspectus systematicus et geographicus Avium Europæarum auctore ALPH. DUBOIS, Doctore Scien. Nat.; conservatore in Museo reg. Nat. Hist. Belgii. Bruxellis (1871). Large 8vo, pp. 35.

† Fauna d'Italia, Parte seconda: Uccelli, per Tommaso Salvadori. Fascicolo primo; Milano, 1870 (Francesco Vallardi).

The list seems likely to be a very full one, as the birds not only of Sardinia, but also those of Malta, are included.

The Rev. J. J. Halley has commenced an illustrated work on Australian Parrots *. We admit the force of the temptation to depict a family so nobly represented at the antipodes; but the first part of the present publication does not recommend it either as a work of art or as embodying information likely to be of service to the science of ornithology. The delineations are very far behind even average productions of a like nature.

Mr. Gould has just issued the twenty-fourth part of his great work on the 'Birds of Asia.' In it is figured a "*Pellorneum palustre*, Jerdon," of which he is unable to give any information, or even a correct reference to the work in which it has been described. As regards the latter point, we believe that we may assure Mr. Gould, with confidence, that the bird has never yet been described at all, and that the only publication of it which has taken place is that in the 'Birds of Asia.' As regards its habitat and locality, Major Godwin-Austen informs us that he obtained one specimen of this rare species, at the end of the month of September, at the base of the Khasia Hills near Chatak, in the great "beel" or marsh there. The species seemed to haunt the thickets of high reeds, and of a kind of bramble which is peculiar to those marshes. It may not be so rare, Major Godwin-Austen observes, as has been supposed; but it is extremely difficult to shoot birds when moving along in a canoe through the reed-beds of that district, and still more difficult to pick them up when shot. Dr. Jerdon likewise obtained a specimen of this bird somewhere in Assam.

Some characteristic drawings, by Swainson, have recently been published, with short accompanying descriptions by Mr. G. R. Gray †. These plates, twelve in number, were prepared to form part of a series of figures of Chinese birds by Dr. J. E. Gray, but were laid aside through pressure of other engagements. Swainson was perhaps the best ornithological draughtsman of his day; and these drawings, larger than the size he usually adopted, are unsurpassed by any illustrating his well-known works.

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* A Monograph of the Psittacidæ or Parrot Family of Australia. By the Rev. J. J. Halley. Illustrated from original drawings by James W. Sayer. London, Trübner.

† A Fasciculus of the Birds of China. By G. R. Gray, F.R.S.

Mr. J. A. Allen's article "On the Mammals and Winter Birds of East Florida, with an examination of certain assumed specific characters in Birds, and a sketch of the Bird Fauna of Eastern North America," printed in the Bulletin of the Museum of Comparative Zoology at Harvard College, Cambridge, Massachusetts, vol. ii., is likely to produce, if it has not already done so, considerable agitation amongst ornithologists on both sides of the Atlantic. The author makes a most able protest against the minute subdivision of specific names, with special reference to the works of his own countrymen. His arguments are supported by minute examination of a number of specimens; and his observations are carefully collated in tables. The nature and extent of individual variation in many species is fully dwelt upon; and thence the author proceeds to what he calls climatic variation, and, lastly, treats of "Species, Varieties, and Geographical Races." Certain peculiarities of colour are traced to certain meteorological peculiarities of the regions where they occur. Increase of colour to the southward is shown to correspond with increased intensity of the solar rays and greater humidity of climate, and the maximum amount of colour in many birds of the United States to correspond with the maximum rainfall. The practical application of these laws, as understood by Mr. Allen, is shown by his placing as simple synonyms the names of a number of birds separated by recent writers on North-American ornithology. In some instances we should be inclined to think he has made out his case; but the materials at our disposal in this country are not sufficiently extensive to enable us to form a very decided opinion on many of the cases cited. Still on these subjects we have a well-founded suspicion of the application of analogical reasoning; and on looking into the instances in which the author has applied his rules outside the extent of the specimens at his command, we are strongly of opinion that he has pushed matters too far, and that he, and the writers he seeks to refute, represent, as it were, the opposite limits of a pendulum's oscillation, the golden mean lying between the two. A prominent case in point is that of the Buzzards of North America.

Mr. Allen states his present opinion to be, that (putting *B. lineatus* aside) all the so-called species may be referred to *B. borealis* and *B. pennsylvanicus,* to which *B. oxypterus* of Cassin is united. We much doubt the possibility of maintaining the number of species claimed by Baird and others; but we cannot refrain from putting in a plea for *B. swainsoni,* which, so far as our experience goes, never assumes the red tail so characteristic of *B. borealis.* With *B. swainsoni, B. insignatus* must be placed; and it yet remains to be seen how far this bird differs from *B. vulgaris* of the northern portion of the Old World. The true *B. harlani* must, we think, be called a melanism of *B. borealis.* As for *B. oxypterus* we have always considered *B. fuliginosus* of Sclater synonymous with it; and if so, it is not *B. pennsylvanicus* as Mr. Allen asserts. Take another case: *Scops maccalli* is placed as a synonym of *S. asio*; the name really is synonymous with *S. trichopsis* of Wagler, the bird being quite distinct from *S. asio,* as has been pointed out elsewhere*.

Some useful generalizations respecting the distribution of North-American birds form the next portion of this instructive paper; but here again Mr. Allen is led outside his immediate subject into a sketch of his views of the distribution of ornithic life on the globe's surface. Finally, we have a list of works on American ornithology, classified according to the countries to which they especially apply; but again we find, especially in Central America, that the classification laid down has not been very accurately adhered to.

This memoir will, we believe, act as a useful antidote against the undue tendency to recognize species; but we must repeat our warning that too much stress should not be laid on the supposed action of physical laws upon the plumage, bills, &c. of birds. Then again these climatic variations require the closest attention, and it is yet a question under which system they receive the most. To those who believe in the doctrine of evolution "individual variation," "climatic variation," &c. are but the first steps in the series which culminates in creatures, we might say, as wide as the poles asunder.

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* *Cf.* P. Z. S. 1868, p. 57.

A valued contributor has recently sent us number 14 (Jan. 19, 1872) of volume iv. of the 'Cornell Era,' "published every Friday by students of the Junior Class at the University [Cornell] press," wherein we find a letter signed "T. W. J. Jr." giving Professor Baird's and Dr. Coues's opinions as to the validity of a certain Grouse described in the number of 'The Era' for the 8th of December, 1871, as *Bonasa jobsii*. Both these high authorities unite in saying that the supposed species is based on a somewhat abnormal specimen of *Bonasa umbellus*. One remark of Professor Baird's quoted in this letter is significant: he writes, "When I published my work on the birds of North America I was in what might be called the analytical stage of Natural-History development. My present condition is synthetical. I take more pains now to subordinate forms, once considered specific, than I do to establish them as such."

The first part of Giebel's 'Thesaurus'* has lately reached us. It contains, in the first place, references to the works of authors arranged under a number of headings; then follows the commencement of an alphabetical enumeration of the species and genera of birds. As it would be premature to discuss the merits of this latter portion, we will merely remark that the first word (p. 255) contains a palpable misprint! We must confess that, having expected great things from this work (Ibis, 1871, p. 251), a perusal of this first portion has produced in us a feeling of great disappointment. In the first place the classification of the various works of authors under their respective names is so complex that it is difficult to know where to look for any specific work or paper. We could afford to overlook this unnecessary complication were the papers themselves placed with even ordinary care under the headings they might be expected to be found under; but accuracy has been entirely neglected, and we find errors and blunders that are little short of astounding. To justify these strong remarks, the following instances selected out of a host of others will, we think, be sufficient. To begin at home, the first and second series of this Journal are set down as containing five volumes each (p. 10). Under "Propagatio" (p. 120) we find that the views of our worthy predecessor in 1852 took a very practical turn, and that he published in that year a work on the "breeding, rearing and fattening of Domestic Poultry"! Works and papers upon the birds of different portions of the world are arranged under the particular country to which they belong. It is there that the most glaring errors are to be found. Under "Britannia" we find (p. 165) a paper in the Boston Society of Natural History, by H. Bryant, entitled "List of Birds observed at Grand Manan and Yarmouth"!; also (p. 165) a descriptive catalogue of the raptorial birds in the Norfolk and Norwich Museum. Wickevoort-Crommelin's papers in the Ned. Tijdschr. Dierk. and elsewhere are included under "Germania, Austria" (p. 178), somewhat prematurely, we cannot but think. Under "Asia" we find (p. 190) "Notes on Birds collected in Benguela, by J. Monteiro." Can Benguela have been confounded with Bengal? So far as we can see, the Antilles, Bermuda, Vancouver's Island, the Falkland Islands, and Hainan are all classified under "Australia and Oceania;" in addition to which we find under the same heading a paper on North-China birds and Mr. Stevenson's 'Birds of Norfolk' (was Norfolk Island supposed to be the scene of Mr. Stevenson's labours?)! Papers on the birds of North, Central and South America are hopelessly confused. Sombrero, Chiriqui, Nicaragua, Yucatan, Puna Island in the gulf of Guayaquil, and Honduras all come into North America. Central America, according to Dr. Giebel, contains the district of Columbia (an astonishing fact for the Government of the United States), to say nothing of the Smithsonian Institution; and South America is the scene of Mr. Layard's notes from the Antipodes! Finally, but, alas! not exhaustively, Mr. Eyton's Catalogue of the species of skeletons of birds in his possession finds itself classified under "Aves monstrosæ, abnormes, hybridæ"! Misprints abound to such an extent that the work reads not unlike first proofs just issued from the hands of a careless printer. Had some simple or even alphabetical arrangement of authors been adopted, with less regard to the particular nature of their works, and the whole undergone careful revision, the result would have proved of the greatest benefit to working ornithologists. Even as it is, we can see that the book can be used with advantage as a ready guide to references, the omission of which in Mr. Gray's Hand-list forms its weakest point.

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* Thesaurus Ornithologiæ. Repertorium der gesammten ornithologischen Literatur und Nomenclator sämmtlicher Gattungen und Arten der Vögel, nebst Synonymen und geographischer Verbreitung, von Dr. C. G. Giebel, Professor an der Universität in Halle. Leipzig, 1872. Erster Halbband. Large 8vo, pp. 400 (F. A. Brockhaus).

Messrs. H. M. Labouchere and Mr. Jesse have undertaken a translation of Dr. A. E. Brehm's 'Bird-Life'*, of which four parts have appeared. The translators seem to have performed their duties with commendable care; and the parts improve as they go on. We cannot, however, but wish that their energies had been bestowed upon a work more worthy of their labour. Dr. Brehm's book abounds with observations of a very superficial character, and appears to us to be likely to afford little solid instruction either to the student or the general reader. We trust an index to scientific names will be given in the last part; for at present it is very difficult to find the subjects of Dr. Brehm's observations. To search for them is like (to quote the old saw) "looking for a needle in a truss of hay."

Ornithological Works in prospect.

The numerous ornithological notes which have appeared in the pages of this Journal and elsewhere upon the birds of Egypt are shortly to be collected under one cover by Captain G. E. Shelley, who has much additional information to impart. The work will be large octavo size, and will be illustrated by fourteen coloured Plates. This book will be of undoubted use and interest to all travellers on the Nile, more especially as the description of each species will be sufficiently full to enable the traveller to identify his specimens. The prospectus, which has just reached us, contains a pretty Plate, by Keulemans, of *Nectarinia metallica*.

Messrs. Layard and Sharpe have in preparation a 'Handbook to the Ornithology of South Africa,' to take the place of Mr. Layard's useful little work on the birds of South Africa, which has been freely criticised in these pages. The last-mentioned book, we are happy to learn, has proved an undoubted success; and we feel confident that this promised new publication, which will combine all that has since come to light on the birds of South Africa, will meet with similar favour. Its scope will be enlarged, so as to include all the birds found within the limits of the South-African avifauna, and will thus comprise those of Natal and Damaraland, as far north as the Zambesi on the east and Benguela on the west.

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* Bird-Life. By Dr. A. E. Brehm. Translated from the German by H. M. Labouchere and W. Jesse. Large 8vo: London, 1871. Parts I.-IV. (Van Voorst).

Books such as this on local faunas are of the utmost service, and do more than any other class of work to develope a latent taste for ornithology in many a one who would otherwise never progress beyond the acquirement of vernacular names.

The labours of the late Mr. C. J. Andersson in Damaraland are, we are glad to hear, not to be lost to science; for Mr. J. H. Gurney, who, as the readers of 'The Ibis' well know, has long interested himself in the study of the birds of the adjoining regions, has undertaken the task of editing the voluminous MSS. which that well-known collector left behind him. Part of the book is already in the press; so that we may confidently expect the finished work shortly.

Mr. Buller, well known for his researches amongst the birds of New Zealand, is now on a visit to England, with the express object of bringing out the complete work contemplated some years ago (Ibis, 1868, p. 504) on the ornithology of that country, where zeal for our science seems in the ascendant. The book is to be in quarto, of the same size as Messrs. Sharpe and Dresser's 'Birds of Europe,' and is to be illustrated in the same style by thirty-five coloured Plates, to include about seventy figures of New-Zealand birds. The prospectus, which has just been issued, tells intending subscribers to apply to the author, 7 Westminster Chambers, Victoria Street, Westminster.

Mr. Elliot promises shortly, so soon as his grand 'Monograph of the Phasianidæ' is completed, to commence the issue of a similar work on no less a subject than the "Birds of Paradise."

The drawings for the Plates have been already executed by Mr. Wolf; and having stated thus much, we can only say that a group of birds so difficult to represent adequately is certain to be done justice to, so far as illustration can do it.

We are promised an ornithological work upon the birds obtained during Forsyth's expedition to Yarkand, to which allusion has already been made in these pages (*cf.* 'Ibis' 1871, p. 407), where the new species obtained were described by Mr. Hume. The volume is to be in the form of Blanford's 'Geology and Zoology of Abyssinia,' and is to be illustrated by about thirty coloured Plates. The work will appear under the joint authorship of Dr. Henderson, the Surgeon to the expedition, and our well-known contributor, Mr. Allan Hume.

Professor Baird informs us that the first batch of MSS. for the work on the 'Birds of North America,' on which he and Dr. Brewer have been engaged for several years, has been sent to press. The work is to be something in the style of the 'Birds of California,' but will be superior to it in beauty, and will embody a much larger proportion of biographical text to each species. The engravings of the heads used in that work have nearly all been reproduced in more artistic style; and this especially applies to the new ones, relating to the peculiar eastern species. This preliminary labour, Prof. Baird tells us, is finished; so that ere long we may expect the complete work.

We have received the following pamphlets, in addition to extracts from the 'Proceedings of the Zoological Society,' the 'Annals and Magazine of Natural History,' and other English Journals:—

"On the Sternum and Viscera of Pel's Owl (*Scotopelia peli*)." By JAMES MURIE, M.D. From the Journal of Anatomy and Physiology, Nov. 1871.

"List of Birds collected or observed in the Wardha Valley and its vicinity near Chánda." By W. T. BLANFORD. Journ. As. Soc. Beng. xl. part ii. 1871.

"Note on Colonel M'Masters's List of Birds from Nagpore &c." By W. T. BLANFORD. Journ. As. Soc. Beng. xl. part ii. 1871, p. 216.

"Bericht über die Leistungen in der Naturgeschichte der Vögel während des Jahres 1870." Von G. Hartlaub. Arch. für Naturg. xxxvii. Jahrg. 2ter Bd.

"Ueber die durch Herrn Baron E. v. Ransonnet von der Ostasiatischen Expedition eingesendeten Säugethiere und Vögel." Von August von Pelzeln. Verh. k. k. zool.-bot. Gesell. in Wien, Feb. 1871.

"Ein Beitrag zur ornithologischen Fauna der österreichisch-ungarischen Monarchie." Von August von Pelzeln. Verh. k. k. zool.-bot. Gesell. in Wien, März, 1871.

"Monographie der Gattung *Certhiola*." Von Dr. O. Finsch. Verh. k. k. zool.-bot. Gesell. in Wien, April, 1871.

"Die Grundlagen des Vogelschutzgesetzes." Von Georg Ritter von Frauenfeld. Verh. k. k. zool.-bot. Gesell. in Wien, Juli, 1871.

"Der Vogelschutz." Von Georg Ritter von Frauenfeld. Verh. k. k. zool.-bot. Gesell. in Wien, Oct. 1871.

"Om en hidtil ukjendt Knogle i Hovedskallen hos Turakoerne (*Musophagides*, Sundev.), med nogle Bemærkninger om de lignende Knogler hos andre Fuglefamilier." Af J. Reinhardt. Vidensk. Meddel. fra den nat. For. i Kjöbenhavn for Aaret 1871.

"Supplement til "Norges Fugle og deres Geographiske Udbredelse i Landet (1868–70)." Af Robert Collett. Vidensk.-Selsk. Forhandlinger for 1871.

"Ornithologiske Bemærkninger til Norges Fauna." Af Robert Collett. Indberetning til det academiske Collegium ved det kongelige Frederiks Universitet. Christiania, 1871.

"Intorno alla *Fringilla citrinella*, Linn." Nota di Tommaso Salvadori. Atti della Reale Ac. delle Sc. di Torino, vol. vii. Dec. 1871.

'Annual Report of the Board of Regents of the Smithsonian Institution, showing the operations, expenditures, and condition of the Institution for the year 1869.' Washington, 1871.

"Descriptions of new Species of Birds from Mexico, Central America, and South America, with a note on *Rallus longirostris*."

By Geo. N. Lawrence. From the Annals of the Lyceum of Natural History of New York, vol. x. p. 1 (Feb. 1871).

"Descriptions of three new Species of American Birds, with a note on *Eugenes spectabilis*." By the same. Ibid. p. 137 (Nov. 1871).

"Descriptions of New Species of Birds of the Families Troglodytidæ and Tyrannidæ." By the same. Proc. Ac. Phil. 1871, p. 233 (Dec.).

"Notes on some Birds in the Museum of Vassar College." By Professor James Orton. Am. Nat. iv. No. 12, Feb. 1871.

"Bullock's *Oriole*." By Elliott Coues. Am. Nat. v. Nov. 1871.

'Archives of Science and Transactions of the Orleans County Society,' vol. i. nos. 1–3, Oct. 1870 to April 1871.

The latter contains the commencement of a "Catalogue of and Observations on the Birds of Vermont." By the Rev. Daniel Goodhue.

"Annual Report of the Trustees of the Museum of Comparative Zoology at Harvard College in Cambridge, Massachusetts."

"Zur Ornithologie Nordwest-Amerika's." Von Dr. O. Finsch. Abh. des naturwiss. Vereins zu bremen, Bd. iii. Jan. 1872.

XXV.—*Letters, Announcements, &c.*

We have received the following letters addressed to "The Editor of 'The Ibis'":—

Rajkoti, Kattywar.

Sir,—I venture to write you a few lines on a subject which has caused me much perplexity. I have always been under the impression that *Cyornis banyumas* and *C. tickelliæ* were two distinct species, the latter, according to Jerdon, being only found in Central India. Some two years ago, when visiting the southern districts of this Province, I was somewhat surprised to find *C. banyumas* and *C. tickelliæ* in equal numbers and both very common. Since then I have constantly met with both species wherever the country was fairly wooded, and have frequently shot them off the same tree and within a few minutes of each other. Quite recently, whilst sitting at the base of the granite precipices which form the scarp of a well-known hill in Kattywar (the Geeruar), and looking over the wooded spurs and valleys lying at my feet, glowing with a hundred tints, over the plains beyond, to the faint sea-line on the horizon, I was recalled from speculations on the past, present, and future of the country spread like a map before me, to considerations of an ornithological nature, by suddenly becoming aware of a *C. tickelliæ* perched within a few feet of me. A mass of dark foliage formed a fine background for the grey-blue upper plumage and pale orange breast, whilst a bunch of the yellow succulent *Garruga pinnata* hung suspended above it, and lit up a picture which I gazed upon with feelings that only desk-tied ornithologists can properly appreciate.

As I watched my bright-eyed little visitor, a doubt arose in my mind:—Are *C. banyumas* and *C. tickelliæ* different species or simply male and female of the same?

Subsequent close observation has satisfied me that *C. tickelliæ* is only the female of *C. banyumas.* Throughout hot weather I have had daily opportunities of observing them. There is not a tree under which I have rested that has not been the resort of these pretty little birds; and I have found, as an unvarying rule at this season, that when an individual of one species is seen, the other is sure to be found in its immediate neighbourhood. Jerdon does not describe the female of *C. tickelliæ,* and states that the female of *C. banyumas* is probably olive-brown; but if this were so, I cannot but think I should have met with it; yet, notwithstanding the number of blue birds I have observed, and that I am constantly on the watch for the supposed female, it has not yet fallen to my lot to see any but blue individuals of *C. tickelliæ* and *C. banyumas,* the former of which I believe to be really the female of the latter.

Yours, &c.,

J. Hayes Lloyd,
Capt. Bombay Staff Corps.

P.S.—When writing the above I had not seen the October number of 'The Ibis,' containing Mr. Blanford's letter (Ibis, 1870, p. 533). That gentleman's experience goes to corroborate mine, inasmuch as all the specimens of *Cyornis tickelliæ* which he obtained proved to be *females.* I shall be curious to learn whether a specimen has ever been obtained which proved *on dissection* to be a male. For my own part, having had further opportunities of studying the subject, I am convinced that the female of "*Cyornis banyumas*" is either "*C. tickelliæ*" itself or a bird exactly answering the description of *C. tickelliæ* as given by Jerdon.

Gibraltar, December 5th, 1871.

Sir,—Allow me to add to Mr. H. Saunders's "List of the Birds of Southern Spain" the following species:—

1. Cypselus pallidus, Shelley, Ibis, 1870, p. 445.

I have certainly seen this species more than once at Gibraltar, in April, but have not yet obtained a specimen. Those obtained by Olgese at Tangier were killed early in April or late in March; but it is by no means common there. In M. Favier's list it is named "*C. murinus*" of Fairmaire.

2. Parus cristatus. "Capuchino."

Resident and very common in the cork-wood of Almoraima, ten miles from Gibraltar, and found in all the districts in the vicinity where there are any cork trees, in which trees, in common with *Parus major* and *P. cæruleus,* they nest. They also nest in the first pine-wood, about six miles from Gibraltar. They begin to lay about the 11th of May. The sexes are exactly similar in plumage, except perhaps that the crest of the male is more developed. I saw this bird once in April, near Laracla, in Morocco, on a cork tree.

3. Sylvia melanocephala.

Resident, extremely abundant and conspicuous, and one of the few warblers nesting on the Rock of Gibraltar. I have had several nests in my garden, the earliest date on which an egg was laid being the 12th of March. The number of eggs varies from three to five; the nest, very slight, formed of grass and sometimes cotton threads, is lined with hair, and always placed in some thick bush about two or three feet from the ground.

The male sits as well as the female. In habits this bird much resembles the Blackcap, but is more obtrusive, and its song is to be heard at all seasons. It is very partial to figs, grapes, &c., and in winter eats the seeds of the "pepper-tree" of Gibraltar (*Schinus molle*). This bird is one of the (if I may use the expression) dry warblers, requiring very little, if any, water, living throughout the hot season in places where there is none. The only other Sylviidæ which regularly nest on the Rock are *Pratincola rubicola* and *Dromolæa leucura*; some seasons *Sylvia atricapilla* and the next species also remain to breed:—

4. PHILOMELA LUSCINIA, which has nested in the garden of the senior naval officer, and in the "alameda" near the water-tank. The Nightingale is found in Southern Spain in great numbers wherever there is wood and water; in *the* "Cork-wood," you may find any number of nests in May; as a rule there are young hatched by the 21st. The earliest dates of arrival observed by me were:—April 8th, 1868; April 2nd, 1869; April 7th, 1870; April 1, 1871. They do not sing for the first day or two after arrival.

I may here mention that the following species of Sylviidæ nest in the Cork-wood and vicinity of Gibraltar:—

1. *Ruticilla tithys.*
2. *Erithacus rubecula.* In great abundance.
3. *Saxicola aurita.*
4. ,, *stapazina.*
5. *Dromolæa leucura.*
6. *Pratincola rubicola.*
7. *Sylvia hortensis.* Abundantly.
8. ,, *atricapilla.* In great numbers.
9. ,, *melanocephala.* In great numbers.
10. ,, *orphea.* Not so numerously as
11. ,, *cinerea,* which nests commonly, as do
12. ,, *conspicillata* and
13. *Melizophilus provincialis,* in dry scrub.
14. *Phyllopneuste sibilatrix.* Not commonly.
15. ,, *trochilus.* Commonly.
16. ,, *rufa.* Some few nests.
17. ,, *bonellii.* Abundantly.

18. *Ficedula polyglotta.* In numbers.
19. „ *elaica.* In numbers.
20. „ *cisticola.* In numbers.
21. „ *cettii.* Wherever there is water.
22. *Aëdon galactodes.* Dry ground.
23. *Calamoherpe turdoides.* River-banks.

5. ANTHUS OBSCURUS.

Occurs in winter on the mud and salinas of Palmones, near Algeciraz; leaves early in March.

6. ANTHUS CERVINUS.

Seen on passage about the 10th of March.

7. PASSER CISALPINUS.

Obtained in Seville market in April 1871, but is rare.

ANTHUS AQUATICUS (SPINOLETTA), Saunders, no. 135.

Is found in the breeding-season on the high bare ground of the Sierra del Niño, between Algeciraz and Tarifa, at an elevation of about 2500 feet.

I am, Sir, &c.,
L. HOWARD IRBY.

Colonial Museum, Wellington, N. Z.,
23rd December, 1871.

SIR,—In a catalogue of the birds of New Zealand which I published a short time ago I described what I then thought to be a new species under the name of *Colluricincla concinna.* I now find that I have made a mistake, and that the bird is only *Graucalus melanops.*

Yours truly,
F. W. HUTTON.

Glasgow, 5th January, 1872.

SIR,—A specimen of the Balearic Crane (*Grus pavonina*) was shot near Dalry, in Ayrshire, on the 17th of September last, and forwarded to me for identification by a friend who happened to hear of the circumstance. The bird had made its appearance in the neighbourhood a few days previously, and was repeatedly seen soaring with a strong and vigorous flight at a considerable height in the air. It then became a marked object; and when it alighted it was heard giving utterance to loud and discordant cries, the only effect of which was to draw the closer attention of those who had designs on its life. On being approached, it ran with great swiftness before taking wing; and after being hunted from one farm to another, it was at last shot while perched on a hay-rick, towards the close of a quiet sabbath. On dissection it was found that the stomach was entirely empty. I may add that the greatest care has been taken to ascertain that the bird was not an escaped specimen.

I am Sir,
Your obedient servant,
Robert Gray.

Matterau, 23rd January, 1872.

Sir,—In his 'Birds of India,' Dr. Jerdon gave *Hypsipetes neilgherriensis* as distinct from *H. ganeesa* (Sykes); but in his Appendix he stated that the two were identical, and that the former name must be suppressed. According to the descriptions *H. neilgherriensis* has black wings and tail, while the same parts in *H. ganeesa* are brown; and, referring to this, Dr. Jerdon remarks that the description of *H. ganeesa* was probably taken from a faded specimen.

I venture to send you a description from a perfectly fresh specimen just shot here.

HYPSIPETES GANEESA.

Male.—Head glossy black, the feathers lengthened into a demicrest; body-plumage dusky bluish grey, paler on the throat, and the feathers on the back dark-centred; under tail-coverts edged with white; wings and tail brown. Bill red; legs and feet dusky yellow; irides brown. Length $9\frac{1}{2}$ in.; wing $4\frac{1}{2}$; tail 4; bill $\frac{7}{8}$; tarsus $\frac{5}{8}$.

The specimen was alone when shot; and the species appears to be rare.

Yours, &c.,
J. Hayes Lloyd,
Bombay Staff Corps.

Aligurh, N.W. P., 4th Nov. 1871.

Dear Sir,—I have recently obtained, in the Aligurh and Mynpoorie districts of the North-western Provinces of India, which are situated in the flat alluvial plains of the valley of the Ganges, numerous specimens of a Bee-eater unlike any previously recorded from these localities.

Merops philippensis and *M. viridis* are the only species as yet noticed here; further north in the Doon, and eastwards in the Terai and along the whole of the southern skirts of the Himalayas to the valley of the Brahmapootra, *M. quinticolor* occurs; while in the far north-west *M. apiaster*, so common in Cashmere in the summer, is found, Mr. Hume informs me, as a straggler in the Peshawur valley, extending, though rarely, to the Salt range as far as Pind Dadun Khan, on the banks of the Jhelum.

The present species is probably *M. ægyptius*, included in our Indian avifauna on the strength of specimens sent from Scinde by Sir A. Burnes about the year 1830, but which has not, so far as I am aware, been since obtained within our limits.

I say that the present species is probably *M. ægyptius*; but the fact is, that so much uncertainty seems to exist in regard to this species, and all the plates and descriptions to which I have access are so unsatisfactory, that I can arrive at no certainty in regard to it.

I find that no less than eight species have been described, all more or less corresponding with this bird in general colouring, only two of which are retained by Gray in his recently published Hand-list, the remaining six being treated as synonyms and arranged as follows:—

1. *Merops ægyptius* (Forskål), Fauna Arab. i. no. 2; Descr. de l'Egypte, t. iv. 3; Levaillant, Guêpiers, t. vi. 16. =*M. savignii* (Cuvier), *M. persica* (Pallas), *M. ruficollis* (Vieillot), *M. superciliosus* (Lichtenst.).
2. *Merops savignii* (Swainson), B. of W. Afr. p. viii. =*M. longicauda* (Vieillot), *M. chrysocercus* (Cabanis).

I have not the original descriptions of Pallas and Forskål to refer to; but I have compared the plate of *M. savignii* in Swainson's 'Birds of W. Africa,' and of *M. ægyptius* in Bree, neither of which quite corresponds with any of my examples. I have also examined specimens received from M. Verreaux, and sent out as typical examples of *M. ægyptius, M. savignii,* and *M. chrysocercus*; also one of the latter received from Mr. Layard. I have likewise studied the descriptions, by Layard, Schlegel, Jerdon, Rüppell, and others, of the various species above quoted, without being able to arrive at the real distinction between them, if any exist.

Schlegel, if I remember rightly, considers *M. savignii* to be the young of *M. ægyptius*; and if all the Bee-eaters that I have killed belong to one and the same species, he is probably right.

I am disposed to believe that my specimens include two species—the one *M. ægyptius,* the other, looking to geographical distribution, possibly *M. persicus* of Pallas, which is said to breed on the shores of the Caspian Sea. The blue head of the female and the generally bluer hue of the plumage in the latter, compared with the yellowish rufous hue which pervades the green of the back of the bird which I take to be *M. ægyptius,* seem to favour this view; while the fact of their all having been shot in company, and that gradations are observable from one state to another, seem to point to their all being different stages of one and the same species. I send a series of males and females, old and young; and I think that the opportunity may well be taken to give a good plate of these specimens and elucidate the synonymy.

M. chrysocercus, distinguished by a yellowish gloss on the tail and black tips to the lengthened feathers, seems distinct from these.

Whatever their true specific name may turn out to be, their occurrence in considerable numbers in the centre of Northern India, 800 or 900 miles further east than any Bee eaters of this type have yet been noticed, is most remarkable. Mr. A. O. Hume, who was stationed for four years in Aligurh and Mynpoorie, never obtained this species there, nor indeed had he previously received it from any part of India. He suggests that the famine in Persia may have caused this extraordinary migration, just as he tells me that during the terrible famine in Rajpootana and Bhutteeanah the field-rats (*Gerbillus erythrurus*), of which there were enormous colonies, and birds of almost every description, disappeared. During the past two months he has received two specimens of *Coracias garrula* from Ajmeer and the Berars, killed by Captain Kenneth Mackenzie, a bird never before recorded within our limits out of Cashmere, the N.W. Himalayas, and the Peshawur valley, affording another remarkable coincidence probably attributable to the same cause, viz. the pressure of severe drought in their accustomed haunts.

In habits the present Bee-eater is similar to its congeners, associating in small, and occasionally in large, flocks, and keeping near to water, over which it hovers and soars, catching insects on the wing. It is seen sometimes in company with *M. philippensis*; but its flight is more powerful and frequently sustained for upwards of a mile without returning to its perch, to which it does not seem so much attached as the smaller kinds of Meropidæ. Its note is a rolling whistle uttered frequently while on the wing, somewhat similar to that of *M. philippensis*, but more prolonged and musical.

I remain, Sir, yours, &c.,
G. F. L. Marshall,
R. Engineers.

The wandering instincts of the Members of the B. O. U. in the interests of their favourite pursuit seem to be especially developed at the present time, no fewer than eleven of our number being now either residents or travellers abroad. Of the doings of the latter, the following notes will doubtless interest our readers.

Mr. Tristram is again visiting his old haunts in Palestine. Quite recently we received the alarming intelligence that he and his party had been captured by a band of marauding Arabs. Almost immediately afterwards the news of his safety reached us. The following is an account of the main features of his capture and release.

It appears from Mr. Tristram's letters that he left Jerusalem with his party on their scientific explorations on the 30th of January. Their cavalcade was large, consisting of eight horsemen, three servants, nine muleteers, eleven mules, and four asses. A guard of

Jehalim Arabs, engaged at Hebron, was engaged to take them as far as Kerak. There seems to have been some undercurrent of jealousy among the Arab tribes as to who should be the gainers of the "baksheesh" to be levied from so large a party; and much negotiation went on at Jerusalem previous to the start. The Jehalim behaved well and faithfully, and at Kerak handed the travellers over to the protection of the Medjaleh, who immediately began to extort money, exacted £70, and on their arrival at the old castle at Kerak told them to consider themselves prisoners unless they paid a ransom of £600. They managed, however, to send off a messenger at night to the British Consul at Jerusalem; but meanwhile their old friend the Beni Sakki Sheik appeared on the scene; and under his powerful protection they were safe. He had come from Jerusalem, where he had contracted to convey the party from Kerak. Under his wing they departed, nothing more being said of the £600.

The Turkish Government took up the matter very promptly, on the representation of the British Consul, and a large body of troops was at once sent to release the captives. This was providentially unnecessary; but as there are one or two old scores against the tribe to be wiped off, it is probable that they have ere this been compelled to disgorge their treacherously obtained plunder, the Government being fully determined on punishment.

On the 16th of February the travellers were at Aroer, all well and hard at work at their scientific labours. We congratulate our brother "Ibis" on his escape from the "snare of the fowler."

In a letter to Mr. Sclater, dated from Ningpo, Mr. Swinhoe writes, "I am sending you descriptions of two new Pheasants and a fine *Garrulax* procured from the inner mountains of this province. Of the Pheasants, one is a typical Pheasant and the other a Pucras. This province has been more wandered over by Europeans than any other in China; and it is curious that such fine birds have not been stumbled over before. There is much to be done here. The plain we live in contains little worthy of notice except *Mecistura glaucogularis* and *Anthus japonicus*; but the neighbouring hills teem with birds of interest. I met the other day with *Microsceles amaurotis*, of Japan; and a fine *Vultur monachus* was brought to me by a Chinese sportsman."

The ornithology of Western Africa seems likely at last to receive its proper share of attention from the votaries of that science in this country. The papers by Mr. Sharpe on the birds of Fantee, which we have published during the last three years, are apparently only the forerunners of some more extended researches into the ornithology of that district; and we hope to give very shortly some notes by Governor Ussher on the habits of such species as have been observed by him during his long residence on the Gold Coast. We are also looking forward with great interest to the results of the ornithological expedition recently undertaken by two of our Members, Captain Shelley and Mr. T. E. Buckley, who started about the beginning of the year, and reached Cape-Coast Castle in the first week in February. Making this their head quarters, their intention was to divide the three months allotted to their stay into three separate collecting-trips, one month to be devoted to the country round Cape-Coast and the plains of Accrá, and the other two to the forest-country of Denkera and the eastern districts of Fantee. The latest accounts received from the travellers announce their safe arrival at Cape Coast in good health; and we have since heard, from another source, that after a week's successful collecting round Cape-Coast Castle, they had started up the river Volta on their way to the mountains of Aguapim. The only naturalist who has visited the Volta is Governor Ussher, who was much hindered by the Ashantee war from collecting largely, but who nevertheless obtained many rare birds (*cf.* 'Ibis,' 1870, p. 470). Aguapim is only known ornithologically from the collections of Riis, now in the Basle Museum; so that there is no doubt that a fine field lies open to our travellers. The return of Governor Ussher last month to the Fantee country, and the accession to the ranks of ornithologists of Mr. H. F. Blissett, of Cape Coast, who has just sent home a collection to Mr. Sharpe, leave us no room for doubting that the natural history of this rich and little-explored country will in a short time be better known.

Mr. A. B. Brooke is hard at work in Sardinia, whither he repaired early in the present year. It was his intention to reach his collecting-ground before the departure of the Waders &c.; but we hear that he was too late to find them this season, and has therefore turned his attention to other groups.

We are glad to learn that Mr. Layard, who has already worked at the ornithology of a large portion of the Old World, is about to recommence his labours in, to him, an entirely new field. Before our next issue he will have reached Pará, and have plunged into the midst of the South-American fauna. Though this district was visited by Mr. Wallace, and an account of his collections has been given in the 'Proceedings of the Zoological Society' for 1867, and had been previously traversed by Spix and Natterer, we doubt not that much remains to be done, not only in increasing the list of local species, but also working out in detail the habits of the many peculiar forms found at Pará and its vicinity. Our readers will remember that, zoologically, Pará is essentially an outlying district of Guiana, nearly 90 per cent. of its birds belonging to that country. Still it is by no means destitute of peculiar features, in not a few cases the huge Amazon forming the boundary between closely allied but distinct races. To these, we doubt not, Mr. Layard will pay especial attention. We also hear that a local interest is springing up in the city of Pará for the zoological riches surrounding it. Mr. Layard's temporary residence there is extremely auspicious, as he has invariably succeeded in imparting no small portion of his own enthusiasm to those with whom circumstances have thrown him into connexion.

We are glad to hear that *Didunculus strigirostris* is not so rare in Samoa as has been usually supposed. The authors of 'South-Sea Bubbles' tell us that during a recent war skirmishing parties were driven into out-of-the-way places, and "rookeries" of these birds were discovered, and that they were fortunate enough to procure a pair. These were, unfortunately, lost with some 60 other skins in their subsequent shipwreck. Its flesh is described as "brown and delicious."

THE IBIS.

THIRD SERIES.

No. VII. JULY 1872.

XXVI.—*Notes on the Resident and Migratory Birds of Madeira and the Canaries.* By F. Du Cane Godman, F.Z.S. &c.

[Concluded from p. 177.]

40. Calandrella brachydactyla (Leisl.).

Alauda arvensis, W. & B. Orn. Can. p. 17; Bolle, J. für Orn. 1854, p. 455.

A. brachydactyla, Bolle, J. für Orn. 1857, p. 290.

Bolle says the Short-toed Lark is found in the eastern islands Lanzarote and Fuerteventura, and less commonly in Teneriffe and Gran Canary. The same authority also says it is this species, and not *A. arvensis,* which occurs in the Canaries. *A. arvensis* is mentioned amongst the occasional visitors in Madeira. I did not meet with either.

41. Emberiza citrinella, Linn.

Emberiza citrinella, W. & B. Orn. Can. p. 18; Bolle, J. für Orn. 1854, p. 455.

I insert this species on the authority of Webb and Berthelot, who give as its habitat the island of Teneriffe. Bolle seems to doubt its being stationary. It did not fall under my notice.

42. †EMBERIZA MILIARIA (Linn.).

Emberiza miliaria, W. & B. Orn. Can. p. 18; Bolle, J. für Orn. 1854, p. 455, and 1857, p. 291.

One of the commonest species in the Canaries, where it frequents cultivated land in large flocks. I believe it is not found in Madeira.

43. †PYRGITA PETRONIA (Linn.).

Fringilla petronia, W. & B. Orn. Can. p. 19; Bolle, J. für Orn. 1854, p. 456, and 1857, p. 310; Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 437.

Exceedingly abundant near the coast and about cultivated lands and gardens. It even frequents the towns; but breeds in societies in holes in cliffs. I think it is more common in the Canaries than in Madeira.

44. †PASSER SALICICOLA, Vieill.

Passer hispaniolensis, Temm.; W. & B. Orn. Can. p. 19; Bolle, J. für Orn. 1854, p. 456, and 1857, p. 305.

I have specimens of this Sparrow from Palma, in Gran Canary, where it is not uncommon. Webb and Berthelot, and Bolle, say it is abundant in Lanzarote and Fuerteventura. It does not appear to go so far westward as Teneriffe. *P. domesticus* has been occasionally met with in Madeira.

45. †FRINGILLA TEYDEA, Webb & Berthelot.

Orn. Can. p. 20; Bolle, J. für Orn. 1854, p. 456, and 1857, p. 312.

Soon after landing in Teneriffe I made inquiries about this bird, but found the people knew little or nothing about it. They also told me that strange birds, killed in the mountain-forests, did not belong to the island, but were "Pajaros de Africa," and it would be of no use to search for it there. However, I determined to look for it in the pine-forests, high up the mountain, where Webb and Berthelot procured the pair from which the species was described. Accordingly I made an early start one morning from La Guanche, with a guide who knew the forest-paths, and at daylight I found myself in a dense wood of young pines (*Pinus canariensis*). Through this we ascended for about an hour, when the trees became larger. We had got nearly through this belt of trees, and were coming to the open space at the foot of the volcanic cone, where only a few retama bushes are to be found, when I suddenly heard a loud note of a strange bird at some distance to the left of the track. I immediately went in pursuit, gun in hand, and returned in about five minutes, having killed a fine specimen of the bird I was in search of. I spent the whole day wandering about in the upper part of this forest, and killed some seven or eight specimens. Even here it is not very common; and I believe it seldom or never goes lower down. It feeds on the seeds of the pine, and breaks up the cone with its powerful beak in order to get at them, reminding me of the Crossbill. Later in the year it frequents the cañadas, where it feeds on the seeds of the retama, which at the time I was there was only in bloom. I afterwards saw more of them in the pine-forest above Chasna, and procured other specimens. Mr. Crotch tells me that when he was encamped on the cañadas collecting coleoptera, he procured a nest with eggs; the latter, he says, more resemble those of a Shrike than any of the Finches. The nest, I believe he told me, was built in a retama bush. It is known to the goatherds, who tend their flocks in the highest parts of the mountain, by the name of "Pajaro de la cumbre."

46. †FRINGILLA TINTILLON, Webb & Berth.

Orn. Can. p. 21; Bolle, J. für Orn. 1854, p. 457, and 1857, p. 315; Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 437.

Having now gathered together a good series of the Chaffinches from each of the three Atlantic groups of islands, the Azores, Madeira, and Canaries, I have carefully compared the specimens, and have no hesitation in saying that there is but one species common to all. In each group I find slight variations of colour among the individuals. The tail-feathers in some are much whiter than in others; also the green on the back is of much greater extent in some than in others; there is, too, a slight variation in the size of the beaks; but I can find no differences which are characteristic of the birds of any one group of islands. It is a very common species, though in the Canaries it seems seldom to descend lower than 2000 feet above the sea. In habits it is very like our Chaffinch (*F. cœlebs*); and, like it, the number of males seems greatly to exceed that of the females. It builds a larger and more clumsy nest than our bird; its eggs are a little larger, but much resemble them in colouring.

47. †Linota cannabina (Linn.).

Fringilla cannabina, W. & B. Orn. Can. p. 22; Bolle, J. für Orn. 1854, p. 459, and 1857, p. 317; Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 437.

Found in Madeira and the Canaries abundantly; it does not occur in the Azores. Unlike the continental Linnet, the male retains the red breast all the winter; in other respects it does not differ. It is found principally in the open fields.

48. †Acanthis carduelis (Linn.).

Fringilla carduelis, W. & B. Orn. Can. p. 22; Bolle, J. für Orn. 1854, p. 459; Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 437.

Carduelis elegans, Bolle, J. für Orn. 1857, p. 318.

The Goldfinch is very common, both in Madeira and the Canaries, but is not found in the Azores. It does not differ from our European bird.

49. Chrysomitris spinus (Linn.).

Fringilla spinus, W. & B. Orn. Can. p. 23; Bolle, J. für Orn. 1854, p. 459.

Chrysomitris spinus, Bolle, J. für Orn. 1857, p. 317.

Recorded by Webb and Berthelot from Teneriffe, where, however, I did not see it. Bolle says it nests in the pine-woods in the mountain-region.

50. †Serinus canarius (Linn.).

Fringilla canaria, W. & B. Orn. Can. p. 21; Bolle, J. für Orn. 1854, p. 457; Heineken, Zool. Journ. v. p. 70.

Serinus canarius, Bolle, J. für Orn. 1858, p. 125.

Fringilla butyracea, Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 437.

The wild Canary of the Atlantic islands is the original stock of the yellow domesticated variety so well known throughout Europe, and so much prized for its song, in which respect the latter is certainly superior to its wild ancestor. It is exceedingly common in the Canaries, Madeira, and Azores, and is captured in each and sold in large numbers. It feeds chiefly on seeds, and is very destructive in the cultivated land. The cock birds delight to fly some height in the air, to descend perpendicularly with outstretched wings, and to alight on the highest branch of a tree, singing all the time like some of the Larks. The female builds her nest of moss lined with wool, and places it in a low tree or bush; she lays from four to six eggs, which are like those of the Serine (*Serinus hortulanus*), only rather larger.

51. **PYRRHULA GITHAGINEA** (Licht.).

W. & B. Orn. Can. p. 19; Bolle, J. für Orn. 1854, p. 459, and 1857, p. 319.

Both the above authorities say this Bullfinch is not uncommon in the two eastern islands, Lanzarote and Fuerteventura; but as I was unable to visit either of these islands, I did not meet with it. I do not believe it is found further west.

52. **STURNUS VULGARIS**, Linn.

W. & B. Orn. Can. 11; Bolle, J. für Orn. 1854, p. 452, and 1857, p. 277; Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 437.

According to Bolle the Starling is a regular winter visitant to the pine woods of Teneriffe; it is less commonly seen in Fuerteventura. Perhaps, as it does not breed in the islands, it might more properly be placed amongst the accidental stragglers. Webb and Berthelot consider it occasional in Canaries; and Vernon Harcourt gives it in his list of stragglers to Madeira. In the Azores it is a common and resident species.

53. †**CORVUS CORAX**, Linn.

W. & B. Orn. Can. p. 9; Bolle, J. für Orn. 1854, p. 450, and 1857, p. 275; Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 437.

Everywhere abundant in the Canarian group, where it may sometimes be seen in large flocks. Its habits are the same as in other parts. In Madeira it only occurs occasionally.

54. †Pyrrhocorax graculus (Linn.).

Pyrrhocorax alpinus, Vieill.; W. & B. Orn. Can. p. 10.

Corvus graculus, Bolle, J. für Orn. 1854, p. 451.

Fregilus graculus, Bolle, J. für Orn. 1857. p. 277.

It is singular that this bird, which is so very common in the island of Palma, should not occur elsewhere in the archipelago. It breeds in the clefts of the walls of the old crater. I can detect no difference between the Palma birds and those I have in my collection from other parts of Europe.

55. †Columba trocaz, Heineken.

Brewster's Journ. 1829, p. 228; Jard. & Selb. Ill. Orn. pl. 98.

Trocaza trocaz, Bp. Consp. ii. p. 45 (partim); Vern. Harc. Ann. & Mag. Nat. Hist. 1853, xii. p. 58.

Columba laurivora, W. & B. Orn. Can. p. 26, t. 3 (upper fig.).

Trocaza bouvryi, Bp. Compt. Rend. xliii. pp. 837, 948 (1856); Icon. des Pig. t. 70.

Hab. Madeira.

This species is readily distinguishable by its large size, and also by the silvery white semicircular patch which extends round the back of the neck to each side.

The synonymy of the large Pigeons of the Atlantic Islands is involved in great confusion; and no author, so far as I am aware, has as yet assigned to their proper owners the various names that have been given. To make this clear I will trace the history of the synonymy throughout.

Dr. Heineken, in Brewster's Journal of Science, 1829, p. 228, in a short paper on the birds of Madeira, described the Pigeon found in that island as *Columba trocaz*; and this is the earliest scientific notice we find of these birds. It therefore follows that the name that must stand for the Madeira bird is Columba trocaz, Heineken. Specimens of this same bird were afterwards sent from Madeira to Messrs. Jardine and Selby, and were figured in their 'Illustrations of Ornithology,' pl. 98, under Dr. Heineken's name.

We now come to Webb and Berthelot's 'Ornithologie Canarienne,' where the Pigeon of the western group of the Canary Islands and that of Madeira are confounded together under the name *Columba laurivora,* which name is intended to supplant the less classical appellation of *C. trocaz* of Dr. Heineken. Two errors were here committed—one in placing two very distinct birds under the same name, the other in the endeavour to alter a name already established. In dealing with these errors, however, we are still able to use the name *laurivora,* by applying it to the bird found in the *first mentioned* of the localities cited by Webb and Berthelot, viz. the Canaries.

We thus have a name for the Madeira bird about which there can be no doubt, and also a name for a Pigeon from the Canaries. Webb and Berthelot's plate shows us what this latter bird is. The upper figure undoubtedly represents *Columba trocaz* of Heineken; the lower, as I now interpret the plate, *Columba laurivora,* Webb and Berthelot.

Bonaparte, in his 'Conspectus Avium,' ii. p. 45, considers that both Heineken's bird and that of Webb and Berthelot belong to one species, which he calls *Trocaza trocaz,* to which the locality "Ins. Madeira" is assigned, the mention of the Canaries by Webb and Berthelot being overlooked. This view, however, is altered in the 'Comptes Rendus,' xliii. (1856), pp. 837, 948, where Prince Bonaparte justly considers that the birds figured in the plate of the 'Ornithologie Canarienne' belong to two species. He applies the name *Trocaza bouvryi* to the upper figure, retaining that of *laurivora* for the lower. The former name must therefore be placed as a synonym of *C. trocaz.* Both the species are figured in the 'Iconographie des Pigeons,' tt. 69, 70, *C. laurivora* being also figured by Knip, t. 43.

Dr. Bolle, in his first paper in the 'Journal für Ornithologie,' 1855, p. 171, appears to have followed previous authors in confusing the Canarian with the Madeiran bird. He obtained no specimens, though he says he saw what he calls the smaller bird in Palma. In his second article in the same journal (1857, p. 324, *et seq.*), two species are recognized. The first is called *Columba laurivora*; and it would appear that this name is applied to Webb and Berthelot's bird, as now restricted to the so-called female of those authors. The other is called, with doubt, *C. bouvryi,* Bp. But *C. bouvryi,* Bp., is *C. trocaz,* Hein., the Madeiran bird, the occurrence of which in the Canaries there is no evidence to show. There appears, however, to be a second species in the Canaries, which is neither *C. trocaz* nor *C. laurivora*; and to this Dr. Bolle's remarks seem to apply. Of this bird more anon.

Lastly, Mr. G. R. Gray in his 'Hand-list of Birds,' ii. p. 233, recognizes two species, one from Madeira and one from the Canaries, and is so far right. There are errors in the synonymy, which will at once be detected by comparison with what is given below.

Columba trocaz frequents the high laurel-forests of Madeira, where it breeds, only coming down occasionally to feed in the cultivated lands. It is very shy, and not easily got at, even by the natives, who are acquainted with its habits. I was out after them for two or three days without getting a shot, though I saw several. The only plan is to go either early in the morning or late at night, and sit under the til trees (*Oreodaphne fœtens*) (which they frequent) and take the chance of their settling above your head without observing you. Even then they are not easily killed, as the foliage is so thick, and the trees so high, as well as being usually placed on such a steep slope of the mountain-side that, when shot, they sometimes fall more than 100 yards below you, smashing themselves to pieces in their fall; hence it is not easy to get good specimens for one's collection. I, however, finally procured eleven fair skins. They feed on the fruit of the bay and til trees, for which they search amongst the dead leaves upon the ground. The flesh has a strong flavour, in consequence of the aromatic nature of the food. *C. palumbus* is also found occasionally in Madeira—but, as I am told, frequents the chestnut-groves, and not the laurel-forests.

56. Columba laurivora, Webb & Berth.

Columba laurivora, W. & B. Orn. Can. p. 26, pl. 3 (lower fig.); Knip, Pig. t. 43; Bolle, J. für Orn. 1855, p. 171, and 1857, p. 324.

Trocaza laurivora, Bp. Icon. des Pig. t. 69.

There can be no doubt that the bird described as the female of their *Columba laurivora* by Webb and Berthelot has the extremity of the tail white. I have seen the type in the museum of the Jardin des Plantes in Paris, and also the specimen referred to by Bonaparte in the British Museum. In both these examples this character is distinctly shown. The species is smaller than *C. trocaz* of Madeira, and is without the white on the neck so conspicuous in that bird. The vinous colouring, too, of the under plumage is not restricted to the breast, as in *C. trocaz,* but spreads downwards over the abdomen. The head, too, is tinged with iridescent green, and is less decidedly plumbeous than either of the other species.

I never met with any Pigeon in the Canaries exactly answering to Webb and Berthelot's plate and to the examples above referred to; but I heard by report of the existence of such a bird. At Tacaronte it goes by the name of "raboblanco." Pigeons are more numerous in Gomera, where this name is apparently applied to the same bird. The specimen in the British Museum came out of the Massena collection.

57. COLUMBA BOLLII, sp. nov.

Columba bouvryi, Bp. (?) Bolle, J. für Orn. 1857, p. 329 (?).

Plumbea, alis nigricantioribus: colli lateribus et dorso superiore viridescenti et purpurascenti iridescentibus: pectore et abdomine superiore vinaceo indutis: caudâ nigricante, fasciâ latâ subapicali plumbeâ transvittatâ: rostro et pedibus corallinis: long. tota 15 poll. angl., alæ 8·3, caudæ 6, rostri a rictu 1·2, tarsi 1·1, dig. med. cum ungue 1·6.

Fem. mari similis.

Hab. in insulâ Teneriffæ.

Obs. C. laurivoræ affinis, sed capite plumbeo, abdomine imo plumbeo nec vinaceo, caudâ transfasciatâ haud albido terminatâ, tarsis brevioribus et dig. med. minus elongato distinguenda. A *C. trocaz* statura minore et coloribus colli iridescentibus dignoscenda est.

For some time I was under the impression that this bird was not to be distinguished from the white-tailed one; but on a farther examination of the type specimen of *C. laurivora* in the Paris Museum, and on a close comparison of my skins with that in the British Museum, I have no doubt of there being two species of Wood-Pigeon in the Canaries. I procured, in all, nine skins, which include both sexes and young birds. The first I shot in a ravine above Orotava, where I had been told they came to feed in the early morning upon the fruit of the laurel (*Persea indica*). There were three or four more in this flock; but though I watched for them afterwards for two or three days under the same tree, they would not come within shot. I saw this Pigeon also in the laurel-forest of Taraconte, where I spent a couple of days after them without success. I here, however, found three old nests, which the "Guarda" told me belonged to this Pigeon. They were either in the tree heath or laurel trees, about twenty feet from the ground, and built of sticks, much the same as our Wood-Pigeon's. I afterwards found this bird more abundant in the forest of Taganana, at the east end of the island, about 5000 feet above the sea, where I procured the rest of my specimens. It is a very shy bird; and the best way to get them is to hide under the laurel trees where it comes to feed. It is occasionally seen early in the morning, lower down upon the patches of corn, but always returns to the dark forests during the middle of the day, at which time they do not fly much unless disturbed. Those I killed had their crops full of the fruit of the *Persea indica*.

58. †COLUMBA LIVIA, Linn.

W. & B. Orn. Can. p. 27; Bolle, J. für Orn. 1855, p. 172, and 1857, p. 330; Vern. Harc. Ann. & Mag. N. H. ser. 2, 1855, xv. p. 437.

Very common in the Canaries, Madeira, and Azores; it is also abundant on the Desertas. It breeds in the cliffs over the sea. In all three groups of islands this species is very variable in colour. The greater part are exceedingly dark all over; some have white above the tail, while others want it; some are like ordinary Rock-Pigeons. I have also seen a few with white patches on the wings. It is possible these last may be escaped domesticated birds.

59. †COLUMBA AFRA, Linn.

W. & B. Orn. Can. p. 28; Bolle J. für Orn. 1855, p. 173, and 1857, p. 331.

Either this species or the common Turtledove comes to the eastern islands regularly every year. It arrives in spring, and breeds there, leaving again in autumn. I saw several about Taraconte in Teneriffe, but was unable to obtain specimens, and did not then distinguish it from *C. turtur.* Bolle seems uncertain to which species it should be referred. Vernon Harcourt says the last-mentioned species is found occasionally in Madeira.

60. PTEROCLES ARENARIUS, Temm.

Pterocles arenarius, W. & B. Orn. Can. p. 28; Bolle, J. für Orn. 1855, p. 173, and 1857, p. 332.

Inhabits only the plains of Fuerteventura, whence it occasionally passes to Gran Canary. It is usually shot at the drinking-places.

61. †PERDIX RUFA, Linn.

Perdix rufa, Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 437.

Is met with on the Serras of Madeira and in the Eastern Azores. In Canaries the following species takes it place:—

62. †PERDIX PETROSA, Lath.

W. & B. Orn. Can. p. 29; Bolle, J. für Orn. 1855, p. 173, and 1857, p. 333.

It is found in the Canaries only in the wooded ravines near the patches of cultivated land in the mountains, where sometimes from twelve to twenty birds may be killed by a sportsman in a day. The natives, however, catch them chiefly in snares when they come to drink. I have very frequently seen them exposed for sale in the market-place in Santa Cruz. It is said to be wanting in Lanzarote and Fuerteventura.

63. †ORTYGION COTURNIX (Linn.).

Perdix coturnix, W. & B. Orn. Can. p. 29; Bolle, J. für Orn. 1855, p. 173, and 1857, p. 334; Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 437.

Very common in all three archipelagoes, where they are stationary all the year round. They are perhaps most abundant in the Western Azores, where I once shot seventy couples in one day.

64. OTIS HOUBARA, Gmel.

Otis houbara, W. & B. Orn. Can. p. 30; Bolle, J. für Orn. 1855, p. 174, and 1857, p. 334.

Berthelot says it is almost exclusively found in Fuerteventura, where it is said to breed. It is occasionally seen in Lanzarote.

65. †Œdicnemus crepitans, Temm.

W. & B. Orn. Can. p. 32; Bolle, J. für Orn. 1855, p. 175, and 1857, p. 336; Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 437.

Said to be found in all the Canary Islands. I found it tolerably abundant on a plain near the sea to the eastward of Port Orotava, in Teneriffe, where it breeds. Vernon Harcourt gives it in his list of stragglers in Madeira on Mr. Lowe's authority.

66. Cursorius europæus, Lath.

Cursorius isabellinus, W. & B. Orn. Can. p. 31; Bolle, J. für Orn. 1855, p. 174, and 1857, p. 335.

Said by Webb and Berthelot to inhabit Lanzarote and Fuerteventura, and also the south-east coast of Gran Canary near Maspaloma. I did not, however, meet with it.

67. Hæmatopus moquini, Bp.

Hæmatopus niger, W. & B. Orn. Can. p. 33; Bolle, J. für Orn. 1855, p. 175, and 1857, p. 337.

Occasionally seen on the coast of Teneriffe. It is said to breed in some of the deserted rocks on the coast of the eastern island. It is most probable that the South-African Black Oyster-catcher is here referred to.

68. †Scolopax rusticola, Linn.

W. & B. Orn. Can. p. 39; Bolle, J. für Orn. 1855, p. 157, and 1857, p. 338; Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 437; Heineken, Zool. Journ. v. p. 77.

Breeds in all the islands sparingly, and is stationary all the year. It inhabits the high wooded ravines.

69. Telmatias gallinago (Linn.).

Scolopax gallinula, Linn.; W. & B. Orn. Can. p. 39; Bolle, J. für Orn. 1855, p. 177.

Scolopax gallinago, Linn.; Bolle, J. für Orn. 1858, p. 227; Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 437.

Bolle says that the Snipe comes regularly in winter to the high lands, and is very common about Laguna, in Teneriffe.

I conclude it does not breed, being a winter migrant only; but as it is said to come regularly I include it in the list. In his last paper, as quoted above, Bolle says that it is *S. gallinago*, and not *S. gallinula*, which is found in the Canaries; and from all I heard I believe it is so, and that the Jack Snipe is not found there at all. I was not present at the right season of the year to verify this statement.

70. STREPSILAS INTERPRES (Linn.).

W. & B. Orn. Can. p. 34; Bolle, J. für Orn. 1855, p. 176, and 1857, p. 337.

This bird undoubtedly breeds in Flores, in the Azores, and, I think, probably in Canaries, where it is not uncommon in suitable places on the coast. As there is but little beach or low rocky coast, it finds but few places adapted to its habits. Webb and Berthelot consider its appearance only accidental.

71. †TOTANUS HYPOLEUCUS (Linn.).

Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 437.

Not mentioned by other writers as an inhabitant of the Canaries. I saw two or three pairs in Teneriffe, between Candelaria and Santa Cruz, during the breeding-season. I shot at and winged an individual of this species; but before I could get it it ran under a large rock, where it was out of reach. I also saw it towards Anaga Point in the same island. I have little doubt that some few pairs nest along this shore.

72. TRINGA CINCLUS, Linn.

Tringa variabilis, Mey.; W. & B. Orn. Can. p. 38; Bolle, J. für Orn. 1855, p. 176; Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 437.

I did not see this bird, though Webb and Berthelot say that it inhabits all the Canary Islands. Though a constant visitor, it is probably not resident.

73. †ARDEA CINEREA, Linn.

W. & B. Orn. Can. p. 35; Bolle, J. für Orn. 1855, p. 176; Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 437.

Webb and Berthelot consider the Heron only "de passage accidental" in the Canaries. I saw some few pairs about the coast of Teneriffe in the middle of May, and was told that they breed on the detached rocks near the coast—which is very probable, as they certainly do so in St. Michael's. It is said to be occasional only in Madeira.

74. STERNA CANTIACA, Gmel.

W. & B. Orn. Can. p. 41; Bolle, J. für Orn. 1855, p. 177.

Said to inhabit Lanzarote and Fuerteventura and to breed in Alegranza. I am not aware that it goes further westward in these islands.

75. †STERNA HIRUNDO, Linn.

W. & B. Orn. Can. p. 42; Bolle, J. für Orn. 1855, p. 177, and 1857, p. 341; Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 438.

To be found in all the islands. It breeds on the Desertas and other small uninhabited islands.

76. †STERNA MINUTA, Linn.

W. & B. Orn. Can. p. 42; Bolle, J. für Orn. 1855, p. 177.

I saw the Little Tern in Teneriffe and also in Madeira. In the latter island a very young bird was brought me by a boatman, who killed it on the coast near Funchal. It was probably reared there, as the down on the head was protruding through the more mature feathers. Berthelot says that it inhabits Alegranza. It is not, however, included in Vernon Harcourt's list.

77. †LARUS ARGENTATUS, Brünn.

W. & B. Orn. Can. p. 42; Bolle, J. für Orn. 1855, p. 177, and 1857, p. 341; Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 438.

In all the islands, and appears to be more common than the two following species.

78. †LARUS TRIDACTYLUS, Linn.

Bolle, J. für Orn. 1857, p. 341; Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 438.

Both this and the following Gull probably breed about the coasts in Teneriffe. Bolle says the present species comes in winter. I saw either this species or *L. canus* in the middle of May in Teneriffe, though I failed to secure specimens.

79. †Larus fuscus, Linn.

Not mentioned by Berthelot. I however saw pairs of this bird in May in Teneriffe, and in June in Madeira.

80. Larus marinus, Linn.

W. & B. Orn. Can. p. 42; Bolle, J. für Orn. 1855, p. 177, and 1857, p. 341.

This, like the other Gulls included in their list, according to the above authorities, breeds in the island of Alegranza. I am not aware that I saw this Gull amongst the Canaries or in Madeira, though some birds of this species followed our vessel from Lisbon till we were nearly in sight of the latter islands.

81. Thalassidroma bulweri, Jard. & Selb.

Thalassidroma columbinus, W. & B. Orn. Can. p. 44; Bolle, J. für Orn. 1855, p. 178.

T. bulweri, Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 438.

I found Bulwer's Petrel breeding in considerable numbers on the small Deserta. It appears so nocturnal in its habits that I never once saw it flying about in the daytime, though there were plenty of another, smaller species. The nests I found were for the most part low down at the foot of the cliffs under the fallen rocks, where the birds were easily caught with the hand while sitting on their eggs.

Several other smaller species are mentioned by different authors as inhabiting these seas: but as my expedition to the Desertas unfortunately proved a failure, I am unable to say which are to be considered resident. On leaving Funchal on my homeward passage, some small Petrels followed the vessel for a couple of days, which appeared to me to be *T. pelagica.* I also saw similar Petrels on my previous voyage from the Canaries to Cadiz in the month of May.

82. †Puffinus cinereus.
83. †Puffinus anglorum.
84. †Puffinus obscurus.

Puffinus cinereus, P. anglorum, P. obscurus, W. & B. Orn.

Can. p. 43; Bolle, J. für Orn. 1855, p. 177, and 1857, p. 344; Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, 1855, xv. p. 438.

These three species are found in all the archipelagoes, and must undoubtedly breed in the Desertas or other neighbouring islands, as I saw them there in considerable numbers in the month of June. I failed to procure specimens.

85. MERGULUS ALLE (Linn.).

Alca minor, W. & B. Orn. Can. p. 41; Bolle, J. für Orn. 1855, p. 177.

Like many other sea-birds, this species is said to be more numerous in the eastern Canaries, though found occasionally throughout the group.

The above list comprises all the birds at present known to be resident or regular migrants in the Canaries and Madeira*. In a future paper I hope to make some further remarks upon the general features of the ornithology of the Atlantic Islands.

XXVII.—*Ornithological Observations in the Crimea, Turkey, Sea of Azov, and Crete, during the Years* 1854–55; *with Remarks on the Sivash, or Putrid Sea.* By GEORGE CAVENDISH TAYLOR, F.Z.S., late of the 95th Regiment.

THOUGH I have had this article in contemplation ever since our Journal was first started, a variety of causes have hitherto prevented me from carrying my idea into execution. These must be my excuse for introducing it to the readers of 'The

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* Since the above article was in type my attention has been drawn to the bird described by Dr. Finsch as *Pyrrhulauda modesta* (J. f. Orn. 1864, p. 412), which is stated to be found in the Canaries. Though Dr. Finsch adheres to his opinion as to the distinctness of this bird from *P. nigriceps* of Gould, from the Cape-Verde Islands (see Trans. Zool. Soc. vii. p. 275), Dr. Cabanis takes the opposite view (J. f. Orn. 1868, p. 219). I have no further information to impart respecting the species, but must express the opinion that, as Dr. Finsch cites no authority in giving the Canaries as the origin of the single female specimen he described, it may turn out that the species is not Canarian at all, though it is by no means impossible that a species of *Coraphites* may be found in the islands of Fuerteventura and Lanzarote.

Ibis' so long after date. The thirteen published volumes of 'The Ibis' contain no article treating of the localities I visited; nor am I aware that any ornithological notes on the birds of the Crimea have ever been published, except those of Lieutenants Blakiston and Irby, in the 'Zoologist' for 1857, and of Dr. William Carte, in the 'Journal of the Royal Dublin Society' for February of the same year. The observations of these gentlemen were confined more or less to the camp before Sevastopol; while mine, as I shall presently show, had a much wider range.

I had fortunately rare opportunities and great facilities for moving about and visiting the localities to which I shall allude.

My first arrival in Constantinople was from Egypt and Malta, on the 21st of March 1854. After remaining there two months, I returned to England. I went out again in October, and reached the Crimea on the 26th of that month, the morning after the battle of Balaklava, and took up my residence with the Second Division. There I remained until several days after the battle of Inkerman, when I went to stay on board the 'Agamemnon,' in which ship I experienced the destructive gale of the 14th of November. On the 29th of that month I went back to Constantinople.

In January I again visited the Crimea, proceeding thence to Eregli (or Heraclea), on the coast of Asia Minor. In February I went to Khania, in the island of Crete, on board the 'Trent' steamer (since famous as having been the ship from which the Confederate Commissioners, Messrs. Mason and Slidell, were *lifted* by Commodore Wilkes), on an expedition to buy mules for army transport, these same mules being the foundation on which the Land Transport Corps was afterwards built. In another steamer, and on a similar expedition, I visited Ismid, on the Sea of Marmora. But the most satisfactory excursion I made, and the one most prolific of ornithology, was when, in May, I was so fortunate as to accompany the expedition to Kertch, and go with the allied squadron through the Sea of Azov, on board the 'Stromboli,' then commanded by my lamented friend Captain Cowper Coles, since lost with the turret-ship 'Captain,' who kindly asked me to accompany him on that most interesting trip, the pleasures of which I shall never forget. In my subsequent notes I shall have occasion to enlarge upon it.

I passed the greater part of the following summer in the camp, making occasional visits to Constantinople, but was present to witness both the unsuccessful attack of the 18th of June, and the capture of Sevastopol. I managed to enter the city early on the morning after it was evacuated by the Russians. I made my final departure from the Crimea on the 25th of September.

The three gentlemen to whose notes I have alluded above appear to have remained during the winter of 1855–56 and the following spring, when there was comparatively little or no restriction on their movements up to and beyond the outposts. They were consequently enabled to extend their observations into localities which it was impossible to reach during the progress of hostilities; and therefore their notes, so far as the vicinity of the camp is concerned, are much more valuable than mine; for during the siege it was impossible to pass the outposts, and even at times very dangerous to approach them, as it generally happened that independent ball-practice was going on between them and the Russians.

Before concluding my preliminary observations I wish to make a few remarks on the "Sivash," or, as our maps call it, the Putrid Sea. When I was in the Sea of Azov, I could obtain no information concerning it; and it seems that the Russians themselves have but little to impart. The 'Stromboli' steamed, close in shore, along the whole length of the Spit of Arabat; but the haze and mirage so common in this region prevented our seeing to any distance from the ship.

I know of no existing account of it, except the article by Captain Sherard Osborn, R.N., "On the Geography of the Sea of Azov, the Putrid Sea, and adjoining Coasts," in the 'Journal of the Royal Geographical Society' for 1857, from which I shall give a few extracts. Captain Osborn commanded the 'Vesuvius' in the Sea of Azov, and only visited a portion of the Sivash, that nearest to the Spit of Arabat. "Of the other portion," he says, "we shall not presume to speak, no English naval officers having visited it during the late operations, and the information gleaned from the Russians being of that vague condemnatory character that justified one in believing that they might be as incorrect in their opinions and inferences as to its character and the insalubrity of its shores, as they appeared to be ill-informed of the capabilities and physical character of that portion of the Sivash which extends from Ghenitchi to Arabat." * * * * "In that water-space, like every other portion of the Sivash seen by us, where devoid of reeds, it was clear, blue, and sparkling, as if the depth of its waters equalled that of the Atlantic." * * * *

"The northern basin of the Sivash is divided from the southern one by a central area, which bears far more, in its usual aspect, that morass-like character which the general reader would be inclined to impute to the term Putrid Sea." * * * * In this solitude [the inlet of Changkoi] breed vast numbers of wildfowl; and all the summer long we found Muscovy Ducks[†] and flocks of Divers frequenting the lagoons." * * * * "The rapid evaporation—the extraordinary mirage from the heated atmosphere playing over the surface of this area in a summer day was very striking; and between sunrise and sunset at that season of the year it was as utterly impossible to distinguish objects but a mile or so distant upon it as it would be had a cauldron of boiling liquid been there in its place. There are roads through these morasses, only known, however, to the Tartars and smugglers, who are ever at war with Russian custom-houses and tax-gatherers." * * * *

"We suffered from nothing but the offence to the sense of smell; and some of our vessels were months breathing the tainted air. * * the smell was like decayed vegetation mixed with a peculiar odour not unlike gas-water, from which I infer there are bituminous vents in the Sivash * * the exhalations from which give the name of Putrid to this sea." * * * *

That birds should breed in such a salt marsh is very remarkable, as showing that their food is there to be found. "The Muscovy Duck and Common Diver or Shag fed and bred in the Sivash in vast numbers; and in the shoal water and marshes abreast of Chongar Strait, in which we spent a broiling day, we could see abundance of weed, as well as shoals of young fish."

[†] [What species is here referred to? Surely not *Cairina moschata.*—Ed.]

Now here is some new ground for the adventurous ornithologist, where he will find Waders and waterfowl in abundance, to say nothing of other kinds of birds. The locality is easily accessible by way of Odessa and Kertch; and in May, when the birds are breeding, the climate is very pleasant, and not too hot; and, according to Captain Osborn's experience, the air of the Sivash is not unhealthy. I will promise that he will not meet with any drawbacks half so dangerous and disagreeable as the fevers, bad food and lodging, and ferocious insects of the tropical back regions.

He may extend his visit to the sandy spits of the Azov, and, I have no doubt, will return with a collection of skins and eggs which it will be hard to beat. For more detailed information of these localities I must refer him to Captain Osborn's article above mentioned, or to my own 'Adventures in the Crimea,' which, I believe, contains the only existing account, except the letters and despatches published at the time in the press, of the capture of Kertch, and the first and principal raid of the allied squadron through the Sea of Azov, and the attacks on Ghenitchi and Taganrog.

I will now proceed to the notes on the various birds observed by me. Unless otherwise stated, the designations are from 'Yarrell's British Birds,' 2nd edition.

Griffon Vultures (*Vultur fulvus*) were abundant in the vicinity of Sevastopol; and no wonder, considering the quantity of food provided for them, and which they could obtain without risk or trouble. I well remember, when returning from Balaklava to the camp in the dark afternoons in November 1854, how enormous they appeared when seen against the sky-line, perched on the bodies of the numerous dead horses lying on the plain—victims of the battle of the 25th of October. The Egyptian Vulture (*Neophron percnopterus*) is abundant in and about Constantinople in spring and summer. They sit on the roofs of the houses, and breed on the ruined walls and towers of Stamboul.

I saw Sea-Eagles (*Haliaëtus albicilla*) frequently in Balaklava Bay, where the lofty cliffs afforded a suitable refuge for them. I also observed several fine adult birds with white tails near Koslou, on the coast of Asia Minor, where there are also lofty cliffs. Both the common Kestrel (*Falco tinnunculus*) and the Lesser Kestrel (*F. cenchris*) were common about the ravines leading from the camp to Sevastopol. They were eaten by the French whenever obtainable. Black Kites (*Milvus migrans*, Bodd.) were most abundant about Constantinople, breeding in the trees in the courts of the mosques, where they are never disturbed by the Turks. I noticed several nests on the same tree. I saw the Marsh-Harrier (*Circus æruginosus*) on the extensive marshes near Ismid, on the Sea of Marmora. I remember seeing Owls in the dusk of the evening in and about the camp in the Crimea, but never obtained a specimen. My list of Raptores here ends, and is certainly scanty, my attention having been chiefly devoted to the game-birds and water-fowl.

Both the Lesser Grey Shrike (*Lanius minor*, Gmel.) and Red-backed Shrike (*Lanius collurio*) I found abundant in the spring of 1855 near the camp, and also the Barred Warbler (*Curruca nisoria*). My principal hunting-ground was on the battle-field of Inkerman, especially in the ravines, where a good deal of scrubby bush still remained. I was usually followed by French soldiers, who acted as retrievers, and darted into the bushes to look for the slain as soon as the gun was fired, often very much to the detriment of the specimen.

The Blue Rock-Thrush (*Petrocincla cyanea*) I saw in Crete; the Golden Oriole (*Oriolus galbula*) was common in the Crimea, though I do not remember seeing any. I saw some, however, in the vicinity of Constantinople.

In Crete I saw the Stonechat (*Saxicola rubicola*), and the Wheatear (*S. œnanthe*) in the Crimea. When I went, on the 4th of May, with the first expedition to Kertch, which returned without effecting a landing, several examples of the Willow-Warbler flew on board the steamer I was in. A Nightjar, a Hoopoe, several Redstarts, and Doves also came on board.

The Great Tit (*Parus major*) was observed at Constantinople.

I never saw the Bohemian Waxwing (*Bombycilla garrula*) in the flesh; but a skin was given to me by Mr. Churchill, of Pera, then, if not now, the editor and proprietor of the 'Turkish Gazette' (the 'Djeridé Havadis'), who had a collection of birds of the vicinity, and from whom I obtained many specimens.

A Wagtail (*Motacilla*), the Crested Lark (*Alauda cristata*), and the Goldfinch (*Carduelis elegans*) were all observed in Crete; and near Constantinople, and in the Crimea, I saw the Starling (*Sturnus vulgaris*) and Magpie (*Pica caudata*). Grey Crows (*Corvus cornix*) and Jackdaws (*Corvus monedula*) were noticed near Constantinople. The Rook (*Corvus frugilegus*) I found in the Crimea. When on the passage from Malta to Alexandria, in November 1853, three Rooks alighted on the rigging, and were shot. They came from the north, and were evidently bound for Africa. Wagtails, Pipits, Chaffinches, Redbreasts, and a Golden-crested Wren also came on board.

The Hoopoe (*Upupa epops*) is abundant during the spring migration. I note having seen as many as thirteen in one day about the camp, and four of them together. Rollers (*Coracias garrula*), too, were also abundant about the camp. The soldiers used to call them Parrots. I shot one while sitting on the limekiln down in the large ravine leading from the Inkerman battlefield to the Tchernaya bridge. In this limekiln 340 Russians had been buried. I followed another; but it led me up to the French outposts, who were then keeping up a brisk fire with the Russians; so, not feeling inclined to be made game of, I returned home to skin the birds I had obtained, by no means an easy task, having to sit on the ground, with the bird on my knee, and a penknife my only implement. Under such circumstances it is difficult to produce good specimens, especially when the skin has to be put away and crushed before it has time to dry.

Bee-eaters (*Merops apiaster*) were seen in the Crimea, and also at Koslou, in July, breeding in colonies, like Sand-Martins, in the river-banks. The Swallow (*Hirundo rustica*), Martin (*H. urbica*), and Swift (*Cypselus apus*), were observed in the Crimea, and at Constantinople. The Alpine Swift (*C. alpinus*) was abundant in the Crimea, breeding in the cliffs. They were constantly to be seen flying in flocks, over and about the camp;

near St. George's Monastery was a great resort for them. Plentiful as they were, it so happened that I was never able to secure a specimen. I also saw them at Koslou. In Constantinople they are common, and may be seen any summer's day wheeling round the Galata tower. Nightjars (*Caprimulgus europæus*) were common in suitable localities about the camp. One day I was out on the Inkerman battle-field, when one of these birds rose from under a bush. I was about to pull the trigger, when a Zouave, whom I had not seen, jumped up in a line with the bird; I just managed to miss both of them, the former not without difficulty.

Turtledoves (*Turtur auritus*) were common in the Crimea. I saw them in flocks between the camp and the trenches. Doves, probably *T. risorius*, as well, are also abundant in Constantinople, frequenting the forests of cypress trees which cover the Turkish cemeteries. I heard of Rock-Doves being in quantities along the cliffs near Balaklava, but I do not remember seeing any. There are Domestic Pigeons in enormous quantities at one of the mosques in Stamboul, the name of which I now forget. When food is thrown for them, they descend in such dense masses that I have seen them two or three deep in their eagerness to obtain it.

Pheasants (*P. colchicus*) I never saw wild; but one day I met a man walking down the Grande Rue de Pera with a live Pheasant in a trap under each arm. They were frequent items in the bill of fare at Misserie's Hotel, and were no doubt caught at no great distance. I take this opportunity of saying that the market of Constantinople, or, more properly speaking, Pera, the Frank quarter, is well supplied with game. I have seen Wild Boars, Roe-Deer, Hares, Bustards of both kinds, Pheasants, Red-legged Partridges, Woodcocks, Snipes, Bitterns, Pintails, Shovellers, and various wildfowl. Fish are also abundant; I noted Mussels, Oysters, Crawfish, Lobsters, Mullet, Swordfish, Mackerel, Turbot, and large and most brilliantly coloured Gurnards.

I remember seeing a bird (I believe it to have been a Francolin) which had been shot in the spring of 1854 by an officer of the Guards, then encamped near Scutari. It was of the same size and, as well as I can recollect, of similar plumage to a Francolin; but I had no opportunity of examining it closely.

I need hardly say that Quails (*Coturnix vulgaris*) are common everywhere at suitable seasons. I shot them in Crete in February. Large flocks were about the camp in September 1855. An officer of Engineers shot sixteen brace one morning close to Balaklava. They were fine game for the French officers, who used to go out *en grande tenue*, and not unfrequently with swords on as well as guns.

I have already mentioned both species of Bustards (*Otis tarda* and *O. tetrax*) as occurring in the markets of Pera. Towards the close of 1855, after I had left the Crimea, *Otis tarda* was frequently obtained in the camp. Golden Plovers (*C. pluvialis*) and Lapwings (*Vanellus cristatus*) both occurred at Constantinople and Ismid. When on the expedition to Kertch I saw a large flock of Cranes, of what species I cannot say, passing over the ships, and high up in the air. Herons (*Ardea cinerea*) were observed at Constantinople, Ismid, and Crete; and though I never saw Purple Herons (*Ardea purpurea*) in the flesh, I have a skin of one given to me by Mr. Churchill. The White Heron (*Ardea alba*) occurred at Ismid, also in Crete. White Storks (*Ciconia alba*) were common in the outskirts of Constantinople. The Curlew (*Numenius arquatus*) was seen at Ismid; the Whimbrel (*N. phæopus*), too, according to Mr. Churchill, occurs near Constantinople. The Green Sandpiper (*Totanus ochropus*) I saw at Koslou, in July. I saw Woodcocks (*Scolopax rusticola*) at Constantinople, also in the Crimea. I remember flushing one in the thick outer scrub on the ground where the battle of Inkerman was afterwards fought. Snipes (*S. gallinago*) are common near Constantinople; and I was credibly informed that good sport was to be had on the Karasu river, not far from Buyuk Chekmedji. They were abundant in the great marsh near Ismid—also in the salt marsh at the head of Sudha Bay, in Crete, not far from Khania. The Jack Snipe (*S. gallinula*) I found in Crete; I also killed several in the above-named marsh at Ismid. The Coot (*Fulica atra*) occurs at Constantinople, and is abundant near Ismid, in large flocks.

I saw Swans, Wild Geese, and Pelicans, I cannot say of what species, during the bombardment of Ghenitchi by the allied squadron on the 29th of May, 1855. They were evidently bewildered by the heavy firing, and after flying round a few times, made off to security and quiet in the marshes of the Sivash. The Gadwall (*Anas strepera*) occurs in the Crimea; and the Shoveller (*A. clypeata*), Pintail (*A. acuta*), Garganey (*A. querquedula*) at Constantinople. Teal (*A. crecca*), Mallard (*A. boschas*), and Wigeon (*A. penelope*) I found abundant in the marsh near Ismid. It was ground most difficult to walk on, consisting chiefly of rushy hillocks, with deep water between them, and intersected in all directions with streams, just too wide to jump over, there being no firm ground on either side. It is a famous haunt for wildfowl. The water at the edge of the bay is quite shallow. Loopholed boxes have been erected on posts, at some little distance from each other, evidently to enable the natives to indulge in *la chasse aux canards* with as little trouble and discomfort as possible. Here I saw also Tufted Ducks, Great Crested and Eared Grebes, and Pelicans, also numerous footmarks of Otters, and I tallyhoed a Fox out of some high rushes. I was sorry not to be able to remain longer in this locality.

Of Red-Crested Ducks (*Fuligula rufina*) I have a skin from Mr. Churchill's collection; the Pochard (*F. ferina*) occurs near Constantinople, and is also common in the Bay of Eregli, near Koslou. The Tufted Duck (*F. cristata*) is common in Eregli Bay, and also at Ismid. In January I killed three by one shot in Balaklava harbour, also a Smew (*Mergus arbellus*) in immature plumage.

Great Crested Grebes (*Podiceps cristatus*) and Eared Grebes (*P. auritus*) I found plentiful in the Bay of Eregli and at Ismid, and killed many for the sake of their skins. My mode of procedure was to take a caïque, with a couple of rowers; and I found little difficulty in getting within range. I have always found, when in pursuit of diving waterfowl, that, if they are wary, the best mode of obtaining a shot is to fire at them out of range. The bird then, instead of diving, usually puts up its head, and looks out inquiringly, giving time for the boat to approach much nearer. When within fair distance, if the shooter aims well before and under the head, no bird can dive quick enough to escape the shot of a good percussion gun. I speak from years of experience in shooting waterfowl. At one time, when I followed punt-shooting with a large gun, I had become from long practice so adroit in stopping cripples, that I could kill them by moonlight, by aiming at the splash they made on rising to the surface, before they had time to dive again. My difficulty with the caïquejis was that they talked incessantly, and alarmed many birds which I should otherwise have obtained. Having no interest in the sport, and being naturally lazy, they soon got tired of it, and would not exert themselves at the right moment. Sluggish rowers are useless for such work.

I one day met a French soldier, on his return to camp, carrying some Grebes, which he had shot in the Tchernaya with a Russian musket. I ventured to express a doubt as to whether they would be good eating, upon which he assured me that I was mistaken—that they were "poules d'eau" and "bien estimés." Still I doubt if they proved as good as the cat which on another occasion I met two French soldiers swinging between them, on their way from Sevastopol, and which they told me they intended for a ragout.

Cormorants (*Phalacracorax carbo*) and Shags (*P. graculus*) were abundant in the Crimea. I remember one day especially, in January 1855, when the harbour of Balaklava was alive with them, probably owing to some unusual influx of fish. They were flying to and fro among the rigging of the ships, and diving close alongside, and were very tame. I killed four, in two shots, for the sailors of the 'Oscar,' in which ship I was then living, who wanted some fresh meat. I hope they liked them, and found them as good as the Frenchmen did the Grebes. For my part, I should think Cormorants and Turkey Buzzards (*Cathartes aura*) were about equal in flavour.

When I was on board the 'Agamemnon,' then anchored off the entrance of Sevastopol harbour, flocks of Cormorants used to string along every evening to roost, in such multitudes that I might have taken them for Brent Geese, had I not been mindful of Colonel Hawker's maxim for distinguishing the difference under such circumstances, viz. that the former have longer necks and tails, and occasionally cease to flap their wings as they fly.

They were equally, if not more abundant in the Sea of Azov, which swarms with fish; and the long sandy spits, so remarkable a feature in that sea, are most suitable to their habits. Captain Sherard Osborn observed them breeding in the Sivash; and Captain Blakiston remarks ('Zoologist,' 1857, p. 5678) "that the numbers of these birds about Balaklava must be greatly increased at the commencement of winter." This accession of numbers is no doubt caused by the birds frequenting the Sea of Azov being driven out of their summer haunts by the annual formation of ice in that sea.

I saw a few Pelicans at Ismid; but the Sea of Azov is where I found them in the greatest abundance. Immediately after the capture of Kertch and Yenikalé, the allied squadron proceeded with all speed to Berdiansk, on the north coast of the Sea of Azov, in pursuit of four Russian war-steamers which had escaped from Kertch, and which on their arrival were burned by their crews. The squadron anchored off the lighthouse at the end of the Berdiansk Spit, fully six miles from the mainland. The boats were hoisted out and armed, and proceeded to destroy a number of small vessels which were anchored inside the Spit. I obtained a seat in the 'Stromboli's' gig, which was sent ahead of the other boats to sound. The whole shore of the spit was covered with birds in thousands, all Grallatores and Natatores. I particularly observed Terns, Redshanks, Sandpipers, and Plovers; but of what particular species I had no opportunity of judging, as at that time shooting at any thing smaller than a man was forbidden. The Cormorants were in dense masses, sitting on the sandy beach, and, owing to the effect of the mirage, appearing at a distance as large as men—so much so that many on board the squadron thought they were Russian soldiers, and expected a warm reception. There were also flocks of Pelicans in great numbers, and so tame that they would hardly make way for the boats to pass. One might almost have touched them with a boat-hook. They evidently were not accustomed to be molested. It was a rare opportunity for an ornithologist to see so many of these magnificent white birds at such close quarters; but my attention was soon directed to other things. The attraction the spits offer to these birds is no doubt the quantity of fish which frequent the shallow water; and on this and the other spits in this sea were establishments for the catching and curing of fish for the supply of the Russian troops. These establishments consisted of huts built of lath and reeds, boats, heaps of nets and other implements of the craft, together with quantities of fish already cured, and hanging on scaffolding to dry in the sun. All these we proceeded to fire and destroy; and a tremendous blaze they made. The sailors then commenced shooting pigs and fowls, firing their muskets in the most reckless way, to the imminent danger of all around.

The fish were of small size and very bony. We brought some on board, and found them tolerable eating, making a change from the salt junk and biscuit on which we were living.

These spits extend a long distance from the mainland. They are covered with reeds, and are full of creeks and lagoons, and are of course well suited to the habits of Grallatores and Natatores. I shot several Sandwich Terns (*Sterna cantiaca*) near Eregli. I have already stated, above, that Terns of various species were abundant in the Sea of Azov. The Little Gull (*Larus minutus*) is generally to be seen in the Golden Horn at Constantinople. The Shearwaters I saw may be the species called by Messrs. Elwes and Buckley (Ibis, 1870, p. 336) *Puffinus yelkouan*; but my specimens answer better to the species described by Thompson (Birds of Ireland, vol. iii. p. 413) as *P. anglorum*. Probably both are to be met with. Any way, no one can be long on the Bosphorus or Dardanelles without seeing these birds. They are always passing up and down, flying close to the surface of the water. Only twice during more than a year's residence in Turkey did I see them resting on the water. Once I saw a flock settled, and swimming about near the Leander tower, opposite Scutari; and again I saw a very large flock settled on the sea, which at the time was very calm, when passing through the Greek archipelago. There is no difficulty in obtaining specimens. One day in July I was staying at Therapia, and wanted some; so I took a caïque, and went so as to intercept their line of flight. They came in rapidly succeeding flocks, passing close to the boat. Out of two flocks I got five birds—quite as many as I wanted. On being lifted they vomited a clear oil. This seems to be the experience of every one. I was told that they breed on the Cyanean rocks (the Symplegades) at the Black-Sea entrance to the Bosphorus. I planned an expedition to these rocks, but was unable to carry it into execution.

There is plenty of ground and opportunity in Turkey for a sporting ornithologist. Wildfowl are plentiful, and comparatively tame. There are Snipes and Woodcocks in all suitable localities. Two officers of Engineers, who went on a surveying expedition previous to the arrival of the allied troops, told me that they saw abundance of Grey and Red-legged Partridges and Bustards not far from Gallipoli, also quantities of wildfowl near Buyuk Chekmedji and along the Maritza river and near the Gulf of Enos.

XXVIII.—*On the Nidification of certain Indian Birds.* Part I.

By Andrew Anderson, F.Z.S.

Burnesia lepida, Blyth, = *Malurus gracilis*, Rüppell (according to Blyth) *.

I first became acquainted with this interesting little bird in April 1871; but although it was far from uncommon, I found it very local, and confined entirely to the tamarisk-covered islands and "churs" along the Ganges. From dissections made it was evident that these birds were then breeding: and any doubts there may have been on this score were speedily removed; for shortly afterwards I saw young fledgelings being fed by the parent birds. I need hardly say that the acquisition of the nest and eggs of this diminutive bird was looked forward to with no small degree of pleasure; but, unfortunately, it was then too hot for me to work at the subject personally, and the matter was left in the hands of my native collectors, with the usual unsatisfactory results.

This season, having returned from my cold-weather tour somewhat earlier than usual, I devoted my mornings to exploring the islands, determined to become possessed of this desideratum; but fresh difficulties had to be overcome. Not only had the river changed its course, but the favourite haunts of the Thao Warblers had been washed away by the late unprecedented heavy rains. This added to the distance I had to travel before productive hunting-ground could be reached, which, with the delay in crossing the river &c., left me only two hours for actual collecting, notwithstanding I frequently got up at 2 A.M.

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* Cf. Blyth's "Identifications of Synonymy," Ibis, 1865, p. 44.

Under these circumstances any great success was hardly to be expected; and the acquisition of two nests has been the sole result of my exertions. But these, I pride myself, are unique, so far as Indian-taken specimens are concerned; another week and it would have been again too late. The first nest was taken on the 13th of March last, and contained three well-incubated eggs; of these I saved only one specimen, which is now in the collection of Mr. Brooks. The second was found on the following day, and contained two callow young and one perfectly fresh egg. In both cases one of the parent birds was shot off the nest, so that the eggs have been thoroughly identified.

In its actions, habits, and nest-architecture *B. lepida* resembles the true *Drymœcæ*. The nest is domed over, having an entrance at the side; and the cavity is comfortably lined, or rather felted, with the down of the madar plant. It is fixed somewhat after the fashion of that of the Reed-Warbler, in the centre of a dense clump of surput grass, about two feet above the ground. On the whole, the structure is rather large for so small a bird, and measures six inches in height by four in breadth.

But while the *nest* corresponds exactly with Canon Tristram's description* of those taken by him in Palestine, there are differences, oologically speaking, which induce me to hope that our Indian bird may yet be restored to specific distinction. In the first place, my single eggs from each nest have a *green* ground-colour, and are covered all over with reddish-brown spots. Now Mr. Tristram describes his Palestine specimens as "richly coloured *pink* eggs, with a zone of darker red near the larger end, and in shape and colour resembling some of the *Prinia*-group." Is it possible for the same bird to lay such widely different eggs? If I had taken only one specimen, it might have been looked upon

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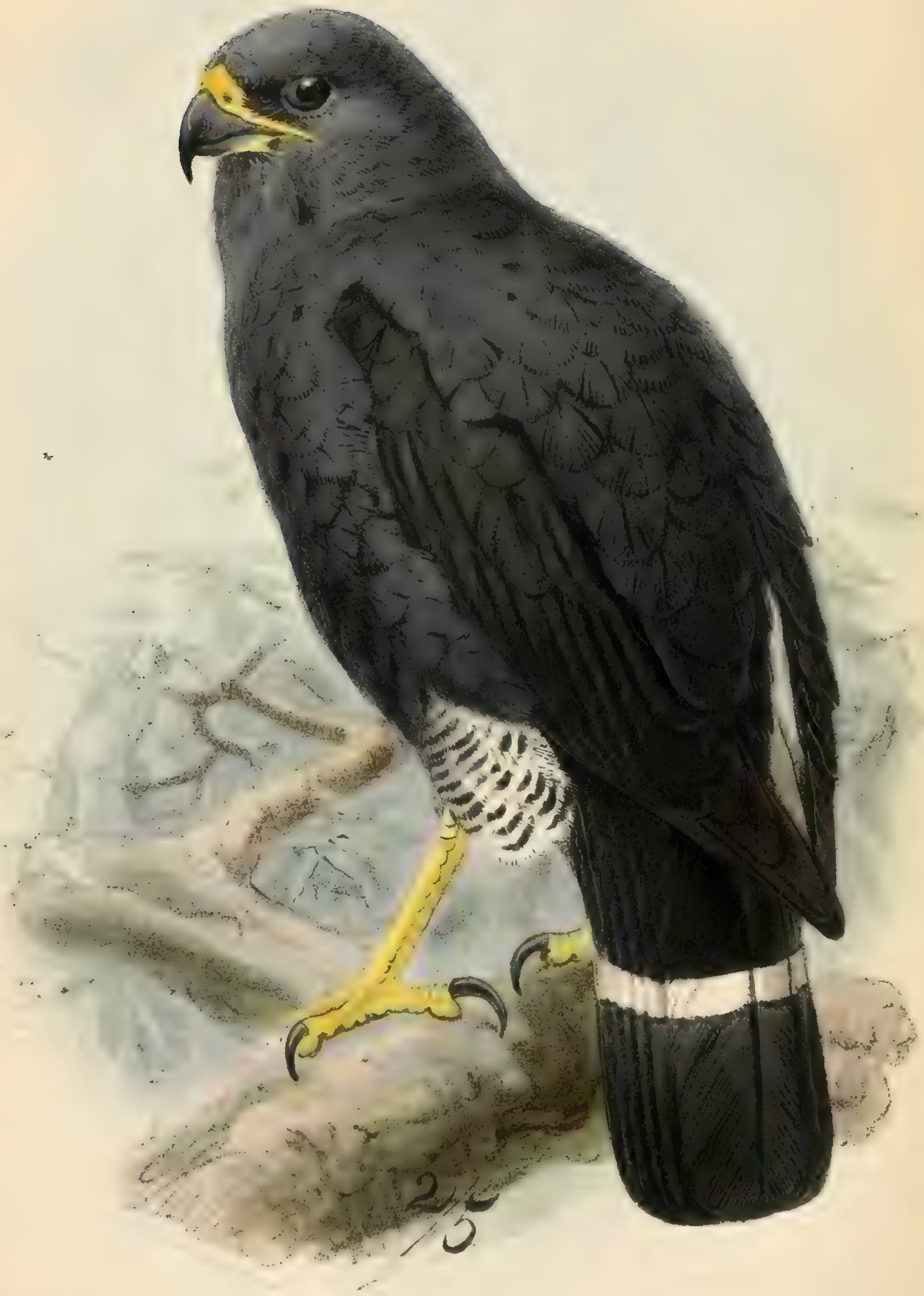
* Tristram, on the Ornithology of Palestine, P. Z. S. 1864, p. 437; Ibis, 1865, pp. 82, 83.



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J. G. Keulemans lith.

M & N Hanhart imp.

LEUCOPTERNIS PLUMBEA.

as mere variety. Again, our Indian bird lays three eggs; and I have never seen the parent birds feeding more than this number of young ones, occasionally only two. Mr. Tristram, *per contra,* mentions having met with as many as five and six. Lastly, it is difficult to conceive that *Burnesia lepida,* Blyth, and its African ally (*Malurus gracilis,* Rüpp.) can be identical; for, judging from the Indian representative, it is a bird of very limited powers of flight, and certainly not capable of flying more than a few yards at a time.

I cannot, however, do better than forward herewith the second nest above alluded to, together with its belongings, to enable the matter to be authoritatively disposed of. The egg is certainly the prettiest and one of the smallest I have ever seen; indeed I found it too small to risk measurement.

The nest referred to by Jerdon as having been found on the Indus by Lieut. Wood cannot belong to this species for two reasons: first, it is not the nature of birds of this group to make a *pensile* nest; and, second, the subject of this note is one of those few birds that breed between the end of the cold weather and the beginning of the hot (March and April)—not during the rains as the generality of them do (July to September).

B. lepida will probably be found wherever there is thao jungle intermixed with surput grass along all large rivers. Mr. Brooks has recently obtained a specimen on the banks of the Jumna.

Like *Drymœpus inornatus,* the male of *B. lepida* has a blackish bill, while in the female it is fleshy brown. I find that the sexes, as a rule, can be distinguished by this peculiarity; but perhaps this sexual difference is only seasonal.

Futteghur,
N.W. Provinces, India.

XXIX.—*A further Revision of the Genus* Leucopternis, *with a Description of a new Species.* By Osbert Salvin, M.A. &c.

(Plate VIII.)

In August 1868 Mr. Sclater and I published a synopsis of the species of the genus *Leucopternis,* in the text accompanying a plate representing *Leucopternis semiplumbea* in 'Exotic Ornithology.' The genus, as then understood by us, contained eight species, which we divided into two categories—one, comprising seven species, having the whole of the underparts white, and the other, a single species, having those parts banded with white and lead-coloured bars. The species which I now propose to describe carries with it the bird usually known as *Urubitinga schistacea* (Sundev.); and the two together form a third section of the genus, having the whole of the underparts uniformly plumbeous in colour. My remarks on these two species, and a further note on *L. princeps*, form the principal subject-matter of this paper. For all further details respecting the other members of the genus reference must be made to the summary at page 121 of 'Exotic Ornithology.'

The new species I propose to call

LEUCOPTERNIS PLUMBEA, sp. n.

Plumbea, alis extus et cauda nigricantioribus, hac fascia mediali alba transvittata; corporis lateribus et alarum pagina inferiore, præter remigum apices, albis; tibiis albo transfasciatis: rostro plumbeo-nigro, cera aurantiaco-flava, pedibus flavis: long. tota cir. 14·5 poll. angl., alæ 9·4, caudæ 5·8, tarsi 2·5, dig. med. cum ungue 1·8, rostri a rictu 1·3.

Hab. in repub. Æquatoriali.

Obs.—*L. schistaceæ* similis, sed alis extus nigricantioribus et intus albis, tibiis fasciatis et caudæ apice nigro facile distinguenda.

The first primary in *L. plumbea* is about two inches shorter than the longest, and nearly the same length as the secondaries; the second primary is one inch and two tenths shorter than the third, which is the longest in the wing, though the fourth and fifth almost attain the same length; the sixth is eight tenths of an inch shorter than the fifth; the seventh and eighth divide the remaining space to the secondaries, which cover the tip of the ninth primary: the white of the under wing is almost pure towards the ulna, but towards the extremity of the inner primaries becomes spotted with pale plumbeous.

The wing-formula of *L. schistacea* hardly differs from that just given, except that the third primary falls short of the fourth and fifth by four tenths of an inch and is equal to the sixth.

The single specimen from which the above description was taken was contained in a collection of bird-skins recently received by Mr. E. T. Higgins from Ecuador, and was probably obtained in one of the valleys of the Andes in the vicinity of Quito; but on this point I can give no exact details. I at first took it to be a skin of *L. schistacea*; but a comparison with specimens of that species at once showed the differences pointed out above. Its resemblance to *L. semiplumbea* led me to the conclusion that the former bird would find a more natural position in this genus, and moreover that its removal from *Urubitinga* would relieve that genus of an abnormal element.

The differences between *Leucopternis* and *Urubitinga* are not very trenchant. They consist chiefly in the shorter tarso-metatarsus of the former and in the proportionally longer toes; the nostril is almost circular in both genera. The primaries project beyond the secondaries rather further in *Leucopternis* than in *Urubitinga*, the secondaries being very long in the latter genus. Another distinction, which, however, is of a negative character, is also important. In *Leucopternis* we have no evidence to show that any of the species passes through a distinctive immature dress before assuming the plumage of the adult. The immature stages of the young of *Urubitinga* are well known; and birds of the two commonly known species in their first fawn-coloured dress spotted with black are almost as familiar as adult specimens.

Leucopternis is also closely allied to *Buteo*; and the members of the two genera resemble each other in habits. In *Buteo*, however, the wings are longer and more pointed, and the secondaries shorter than in *Leucopternis*. The nostril, too, of the former genus is more elliptical in shape, and thus differs from the circular nasal opening of the latter.

Since our article was written in 'Exotic Ornithology' I have obtained a second specimen of *Leucopternis princeps* from Costa Rica; and as the skin is marked as that of a male, I take this opportunity of giving its dimensions. Long. tota 21·0, alæ 14·0, caudæ 7·5, tarsi 3·5, dig. med. cum ungue, 2·75, rostri a rictu 2·2. Comparing these dimensions with those given by Mr. Sclater in the 'Proceedings of the Zoological Society' for 1865, p. 429, it will be seen that they indicate a rather smaller bird than the type there described. It is probable therefore that the original skin sent us by Arcé, but of which the sex was not noted, belongs to a female bird.

Of the so-called *Urubitinga schistacea,* which I now propose to place in the genus *Leucopternis,* I have recently seen and obtained skins which were collected by Hauxwell at Pebas, and by Bartlett near Cashaboya, on the Rio Ucayali; in the adjoining district, on the Rio Javarri, Mr. Bates procured specimens of it. I have also secured a skin which I found in a collection from Bogota which had been forwarded to Mr. Cutter direct from that city. This bird was probably obtained in one of the Andean valleys which stretch away from the cordillera to the eastward. The range of the species seems to be restricted to the basin of the Amazon and its large tributaries. In addition to the localities already mentioned, Mr. Sclater refers to its occurrence in Bolivia. Natterer obtained two examples during his journey—one at Borba on the Rio Madeira, and the other at Barra do Rio Negro. All these places come within the limits of Upper Amazonia; but we have Prof. Schlegel's authority for its occurrence near Pará, and in Guiana, near Cayenne; a specimen in the Leyden Museum is also stated to have come from Brazil, which term doubtless must be construed in a political rather than in a zoological sense.

The ten species of this genus (specimens of all of which, except *L. melanops,* are in our collection) may now be arranged as follows, the synonymy of eight of them being given in the article already referred to:—

A. corpore subtus omnino albo.
  a. *capite toto albo.*
    1. L. GHIESBREGHTI. Ex Mexico et Am. centr. ad Panama.
    2. L. PALLIATA. Ex Brasilia merid.
    3. L. SCOTOPTERA. Ex Brasilia merid.
    4. L. ALBICOLLIS. Ex Guiana, Venezuela, Amaz. et Ins. Trinit.
  b. *capite nigro striato.*
    5. L. MELANOPS. Ex Guiana et Amazonia.
    6. L. SUPERCILIARIS. Ex Amazonia.

c. *capite plumbeo, dorso concolori.*

7. L. semiplumbea. Ex Isthm. Panama et Costa Rica.

B. corpore subtus albo, plumbeo transfasciato.

8. L. princeps. Ex Costa Rica.

C. corpore subtus plumbeo unicolori.

9. L. schistacea*. Ex Amaz. et Columbia.

10. L. plumbea. Ex rep. Æquatoriali.

XXX.—*Notes on some Birds from the Chatham Islands, collected by* H. H. Travers, Esq.; *with Descriptions of two new Species.* By Captain F. W. Hutton, F.G.S.

Mr. H. Travers having lately returned, with considerable collections, from an eight months' visit to the Chatham Islands (a small group lying about 475 miles due east from New Zealand), I am enabled through his kindness to draw up the following list of the birds, which includes not only those species which he brought away, but also a few others of which he was not able to obtain specimens; so that it may be looked upon as complete, so far as our present knowledge extends.

1. Circus assimilis, Jard.

Mr. Travers was unable to procure specimens of this bird; but he saw a dead one that had been killed too long for preserving. He informs me that it does not differ from New-Zealand examples.

2. Prosthemadera novæ-zealandiæ (Gm.).

Two specimens.

3. Anthornis melanocephala, Gray.

Several specimens, male, female, and young.

The female and young differ from those of *A. melanura* only in size; the latter correspond entirely with *A. auriocula*, Buller.

The eggs are usually of a darker pink than those of *A. mela-*

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* *Asturina schistacea*, Sundev. Œfv. Af. K. Vet. Förh. 1849, p. 132; Schl. Mus. des. P. B. Asturinæ, p. 8; *Morphnus schistaceus*, Scl. P. Z. S. 1857, p. 261.; *Urubitinga schistacea*, Scl. P. Z. S. 1858, p. 128; Scl. & Salv. P. Z. S. 1866, p. 198; 1867, p. 979; Pelz. Orn. Bras. p. 2; *Falco ardesiacus*, Licht. in Mus. Berol. teste Bp.

nura, and are largely blotched on the thick end with chestnut. Length 1·05 inch; breadth 0·75.

4. Zosterops lateralis (Lath.).

Eggs only of this species are in the collection; but Mr. Travers informs me that the bird is common on all the islands.

5. Sphenœacus rufescens, Buller.

Several specimens, two of which are variegated with white feathers, principally on the wings. It is found only on the Island of Mangare.

6. Gerygone albofrontata, Gray?

Above olivaceous brown; over the eye, region of the ears, and all the lower surface white, tinged with yellow on the flanks, abdomen, and vent. Quills brown, narrowly edged on the outer margin with olivaceous; secondaries the same, but with a broader edging. Tail brownish rufous, with a brownish-black band near the tip, followed on the three outer feathers with a band of pale rufous; tip brown. Iris light red. Length 4·5 inches; wing 2·25; bill from gape 0·65; tarsus 0·87.

Egg pinkish white, with numerous red spots and lines. Length 0·74 inch; breadth 0·54.

Hab. All the islands.

Two specimens, neither in good condition, were all that Mr. Travers brought. This bird differs from Gray's description of *albofrontata*, in the 'Voyage of the Erebus and Terror,' remarkably in size, and also in the colour of the tail; but I notice that although the total length and that of the wing are considerably more in Mr. Gray's bird than in mine, still the bill and the tarsus are smaller; and the coloration of the tail in the figure agrees with the Chatham-Island bird, although the description does not. Mr. Gray's bird is also said to have been brought from New Zealand by Dr. Dieffenbach; but as this species has never been found in New Zealand since, and as Dr. Dieffenbach visited the Chatham Islands, it is possible that the label may have got misplaced*.

7. Petroica dieffenbachi, Gray.

A single male specimen is in the collection. It answers exactly, both in size and colouring, to *P. macrocephala*, No. 28 of my 'Catalogue of the Birds of New Zealand' (Wellington, 1871); but as *P. dieffenbachi* was originally described from a Chatham-Island specimen, the names in my Catalogue will have to be changed, and No. 29, the smaller bird with the pale yellow breast, will be *P. macrocephala*.

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* [See letter from Mr. Potts, *posteà*.—Ed.]

8. PETROICA TRAVERSI*.

Entirely black, except the wings, which are brownish. Length 6 inches; wing 3·25; bill from gape 0·77; tarsus 1·13. Female similar to the male.

Several specimens, all from Mangare.

9. ANTHUS NOVÆ-ZEALANDIÆ (Gm.).

One specimen.

10. RHIPIDURA FLABELLIFERA (Gm.).

One specimen. Mr. Travers informs me that he could not hear of a black-tailed species of *Rhipidura* ever having been seen on the islands; it is therefore probable that Dr. Dieffenbach's specimen of *R. melanura*, Gray, was incorrectly labelled, and *R. melanura* will therefore be the same as *R. tristis*, Hombr. et Jacq.

? 11. STRINGOPS HABROPTILUS, Gray.

Mr. Travers never saw a specimen of this bird; but from the descriptions of others he can hardly doubt but it once existed on these islands; at the same time he remarks that there is no country in the Chatham Islands at all similar to the haunts it loves to frequent in New Zealand.

12. PLATYCERCUS NOVÆ-ZEALANDIÆ (Sparrm.).

One specimen.

13. PLATYCERCUS AURICEPS, Kuhl.

Two specimens, both of which are larger than any that I have seen from New Zealand, measuring 11 inches in length, and 4·7 inches from the carpal joint to the tip of the wing. The bill and tarsi are of the same size as New-Zealand specimens.

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* [This is the species called *Miro traversi* by Dr. Buller in his second part of the 'Birds of New Zealand,' p. 123 (published June 1872), the description being taken from the same specimens. *Cf.* Buller, *l. c.*—ED.]

14. Chrysococcyx plagosus (Lath.).

Three specimens, all exactly alike, and answering to the description of *C. plagosus* in Gould's 'Handbook to the Birds of Australia,' having a broad bill, and only a very faint trace of a single rufous bar on the second tail-feathers. The New Zealand Golden Cuckoo (*C. lucidus*) has the broad bill of *C. plagosus*, and the second tail-feathers with several well-marked bars of rufous; but none of the feathers has a rufous base. This form does not appear to have been noticed elsewhere as yet, although it is certainly migratory with us. It is very remarkable that *C. plagosus* should be found both in Australia and the Chatham Islands while it is absent from New Zealand, which lies between them. In the Chatham Islands this bird is also migratory.

Is it not possible that all the individuals of the species *C. lucidus* leave Australia to breed in New Zealand? so that this species does not spread in Australia; and the limited number which are sufficient to stock New Zealand would scarcely be noticed when spread over Australia. In this way *C. lucidus*, although inhabiting Australia, would be just as much isolated as if it remained altogether in New Zealand, and any variation would not be transmitted by interbreeding to Australian individuals.

15. Carpophaga novæ-zealandiæ (Gm.).

A single specimen and two eggs are in the collection. The eggs are white, or yellowish white, with minute purple spots on the larger end. Length 1·4–1·47 inch; breadth 1·1.

16. Charadrius bicinctus, Jard.

Two specimens.

17. Thinornis novæ-zealandiæ (Gm.).

Several specimens. Found on Mangare only.

18. Hæmatopus longirostris, Vieill.

Two specimens.

19. Ardea poiciloptera, Wagl.

Mr. Travers did not succeed in getting a specimen of this bird, although he knows that it exists on the islands.

20. Limosa uropygialis, Gould.

This bird was seen by Mr. Travers several times; but he did not succeed in getting specimens. It is migratory, leaving the islands in the winter.

21. Gallinago pusilla, Buller.

Several specimens. On Mangare only.

22. Rallus modestus, sp. nov.

Olivaceous brown, bases of the feathers plumbeous; feathers of the breast slightly tipped with pale fulvous, those of the abdomen and flanks with two narrow bars of the same colour; throat dark grey, each feather slightly tipped with brown. Quills soft brown, the first three faintly barred with reddish fulvous, fourth and fifth the longest. Tail very soft and short, brown. Irides light brown; bill and legs light brown.

Young. Uniform brownish black.

Length 8·75 inches; wing 3·15; bill from gape 1·4; tarsus 1; middle toe and claw 1·4.

A single specimen and young from Mangare; also a specimen in spirits.

23. Rallus dieffenbachi, Gray.

This bird has never been seen since Dieffenbach's visit. It appears to be quite extinct now.

24. Ortygometra affinis, Gray.

A single specimen and broken egg, which is of an olive-brown colour, and highly polished. Breadth ·77 inch.

25. Ortygometra tabuensis (Gm.).

One young specimen.

26. Porphyrio melanotus, Temm.

One specimen.

27. Anas superciliosa, Gm.

One specimen.

28. Anas?

Mr. Travers did not succeed in seeing again the Duck with red on the wings mentioned in his account of his first visit to the islands (Trans. New-Zealand Institute, i. p. 178).

29. **Rynchaspis variegata**, Gould.

Two males and two females.

30. **Lestris catarractes**, L.

Several specimens. Sometimes the feathers of the back of the neck are finely streaked with pale yellow; but usually they are of a uniform brown.

Egg rather pyriform, olive-brown, with large brown and purplish grey spots. Length 3·1 inches; breadth 2·1.

31. **Larus dominicanus**, Licht.

Two specimens, adult and young.

32. **Larus scopulinus**, Forst.

Several specimens.

33. **Sterna frontalis**, Gray.

One specimen. The breast is faintly tinged with rose.

34. **Diomedea exulans**, L.

Common on the coast.

35. **Diomedea melanophrys**, Boie.

Common on the coast.

36. **Ossifraga gigantea** (Gm.).

Several specimens, all of which are brown, getting lighter on the breast and throat, where the colour passes into dirty white.

37. **Halodroma urinatrix** (Gm.).

A few specimens. Length 8 inches; wing 4·5; tarsus 0·8; bill from gape 0·9, along culmen 0·55, breadth at end of nasal tube 0·25, height at end of nasal tube 0·2.

38. **Halodroma berardi**, Quoy et Gaim.

A few specimens. Length 7·75 inches; wing 4·25; tarsus 0·8; bill from gape 0·9, along culmen 0·55, breadth at end of nasal tube 0·17, height at end of nasal tube 0·2. The narrow bill of this species easily distinguishes it from the last.

39. **Puffinus tristis**, Forst.

Several specimens.

40. **Puffinus assimilis**, Gould?

No specimens, but common off the coast.

41. **Procellaria capensis**, L.

Common on the coast.

42. **Prion turtur**, Soland.

Several specimens.

Egg white. Length 1·7 inch.; breadth 1·25.

43. **Prion vittatus**, Gml.

Several specimens. Length 12 inches; wing 8·25; tarsus 1·3; bill from gape 1·6; breadth 0·87.

Egg white: length 2 inches; breadth 1·5.

This is probably the very broad-billed variety mentioned by Mr. Gould at the end of his description of this bird in his 'Handbook to the Birds of Australia;' but I hardly think that it is entitled to rank as a separate species.

44. **Thalassidroma marina** (Lath.).

Several specimens.

45. **Thalassidroma nereis**, Gould.

One specimen.

46. **Graculus carbo**, L.

One specimen.

47. **Graculus carunculatus**, Gm.

A few specimens. As soon as the breeding-season is over, the back becomes brown, with a broad transverse white band.

48. **Graculus africanus**, Gm.

Head, neck, throat, lower part of back, thighs, vent, and over the tail dark blue or green-black; upper back and wing-coverts greenish bronzy-brown, each feather with a black apex; breast and abdomen grey: quills and tail brownish black; head crested and neck ornamented with white feathers in the breeding-season. Bill dark; legs and feet yellowish orange. Length 19 inches; wing 9·5; bill from gape 2·75; tarsus 2. Both sexes alike. This Cormorant is also found in New Zealand, but is very rare; for I have seen portions of the skin of a bird shot at the Wade, near Auckland, which I have now been able to identify with this species.

49. Eudyptes pachyrhynchus, Gray.

One living specimen.

50. Eudyptila minor (Forst.).

Several specimens.

Mr. Travers finds from careful inquiry that there is no evidence of the following birds ever having inhabited the Chatham Islands, although they have been reported to have been seen there (Trans. New-Zealand Institute, i. 178)—*Ardea alba, Ocydromus,* sp., *Anas chlorotis,* and *Apteryx,* sp.

XXXI.—*A Revision of the Genus* Henicurus.

By H. J. Elwes, F.Z.S. &c.

(Plate IX.)

Though the genus *Henicurus* does not present any grave difficulties to the ornithologist, yet, as the species composing it have been a good deal confused and from what we know of its geographical distribution it is not likely that any new ones remain to be discovered, I think the following notes may not be unacceptable.

Temminck first proposed the name *Henicurus* (errore *Enicurus, ἑνικός* et *οὐρά*) for three species of birds from Java and Sumatra—namely, *Turdus leschenaulti* (Vieill.), *H. ruficapillus,* and *H. velatus*—which he figured and described in the Planches Coloriées, vol. iii. livr. 27, 19, & 90. A few years later, when the riches of the Himalayas were first brought to light, four more species were described by Hodgson and Vigors.

Though the exertions of such indefatigable and skilful naturalists as Jerdon, Blyth, Swinhoe, and David have added hundreds of species to the avifauna of Asia, only two distinct *Henicuri* have, in my opinion, been since discovered.

The birds in question form a very well-marked group, of doubtful affinity; for though they are placed by most authors in the family *Motacillidæ,* and resemble the Wagtails greatly in habits and appearance, it is by no means certain that they are rightly so placed.

Blyth, a naturalist whose opinion on any point of classification is of great weight, taking *H. ruficapillus* as the most typical species of the genus (on which point, however, I do not agree with him)*, considers the affinities of *Henicurus* to be with the Myiotherinæ, and says, "the relation of this genus to the Wagtails I consider to be one of analogy rather than affinity."

This point will best be settled by a careful anatomical investigation; but as I unfortunately neglected to preserve the bodies of those species which I have personally observed, and am unable to obtain the necessary materials, I must leave it for the present undecided. It will be observed, however, that *Henicurus* does not agree with *Motacilla* in having the tertiaries as long as the secondaries.

The birds of this genus are preeminently characteristic of the densely wooded mountain-streams of South-eastern Asia, and range from Cashmere to the hill-ranges of China and Java, though nowhere found in India south of the Himalaya. Their plumage, with the single exception of *H. ruficapillus*, is entirely black and white; and their habits, so far as we know them, are very similar. They frequent forest-streams and torrents in the lower ranges of mountains, and rarely stray either into the plains or the upper regions of the Himalaya; though Dr. Stoliczka has procured *H. scouleri* at an elevation of 12,000 feet.

Their motions are so active and lively that they form a conspicuous feature in Himalayan scenery, being usually found either singly or in pairs, flitting rapidly from rock to rock by the side of the most rapid torrents. They appear to be very partial to the neighbourhood of a waterfall or rapid. They make a large nest of moss and fibres, which is placed under a rock close to the water. Their food consists of insects, larvæ, water-beetles, and small shells.

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* [Blyth (J. A. S. B. xvi. p. 157), placing *H. ruficapillus first* on his list of the members of the genus, by no means commits himself to the opinion that that species must be considered the type of the genus. There can be no doubt that *H. velatus* is the type of *Henicurus*, that being the only species published, with the description of the genus, in the 27th livraison of the 'Planches Coloriées,' issued 26th July 1823 (*Cf.* Crotch, Ibis, 1868, p. 500). *H. coronatus*, Temm., = *H. leschenaulti*, was published in the 19th livr. 26 June 1824, and *H. ruficapillus* in the 90th livr. 28 July 1832. Gray gives (Gen. B. p. 41, 1855) *H. leschenaulti* as the type of the genus, but is clearly wrong in so doing.—Ed.]

In describing the plumage of the several species of *Henicuri*, there are several points characteristic of the whole genus, which it will be unnecessary to repeat. In all the species the tail is composed of twelve feathers, of which the four middle pairs are black, with white tips, and graduated in length from the central pair, which are the shortest. The two outer pairs are entirely white, and about equal in length to the next pair, though they vary considerably in this respect in different specimens; the base of the secondaries and tertiaries is also white, and forms a conspicuous bar on the wings (except in *H. velatus*) of greater or less breadth according to the extent to which it is concealed by the wing-coverts; the axillary feathers and greater part of the under wing-coverts, with a bar on the base of the primaries beneath, are also white; the white tips of the secondaries disappear with age, and in fully adult birds are almost imperceptible.

Genus HENICURUS, Temm.

Bill moderately long, straight and stout; the upper mandible sharply keeled at the base; gonys well marked; nostrils lateral, set in a deep fossa, closed from above by a membrane; gape with a few stiff hairs. Wings moderate, rounded; first primary short; fourth, fifth and sixth the longest and subequal. Tail long, forked, of twelve feathers, the four inner pairs of which are graduated in length from the centre. Legs and feet moderate; middle toe the longest and united to the outer one as far as the first joint; nails strong and curved.

Clavis specierum.

A. Pectore albo.

a. dorso cinereo:
  a′. speculo alari tectricibus celato.............. 1. *velatus.*
  b′. speculo alari conspicuo..................... 2. *schistaceus.*
b. dorso nigro:
  c′. cauda longiore quam ala.................... 3. *immaculatus.*
  d′. cauda breviore quam ala.................... 4. *scouleri.*
c. capite et collo posticis ferrugineis.............. 5. *ruficapillus.*

B. Pectore nigro.

d. dorso immaculato:	
e′. major	6. *leschenaulti.*
f′. minor	7. *frontalis.*
e. dorso albo lunulato	8. *maculatus.*
f. dorso albo punctato	9. *guttatus.*

1. HENICURUS VELATUS.

Enicurus velatus, Temm. Pl. Col. 160; Gray, Gen. Birds, i. p. 204; Bp. Consp. Av. p. 251; Horsf. & Moore, Cat. Birds in Mus. E. I. Comp. i. p. 347.

Hab. Java (*Diard*).

Head, back, and sides of neck dark slaty grey; wings, chin, and spot in front of the eye black; breast, belly, rump, tail-coverts, and a bar across the forehead white; the white bar on the wing is concealed by the coverts. Bill black; irides dark brown; legs and feet fleshy white.

Length about 7 inches; wing 3; tail $3\frac{1}{2}$; bill $\frac{3}{4}$; tarsus 1.

The female has the top of the head tinged with brown; and, according to Temminck, the throat is whitish, and the back a little more ashy than in the male.

This pretty and distinct species is, so far as I am aware, only found in Java, where it has been collected by MM. Diard, Reinwardt, and Duvaucel. It is rare in collections.

2. HENICURUS SCHISTACEUS.

Enicurus schistaceus, Hodgs. As. Res. xix. p. 189; Gray's Zool. Misc. 1844, p. 83; Gray, Cat. Hodgs. Coll. in B. M. p. 76; Blyth, J. A. S. B. xvi. p. 157; Cat. Birds in Mus. A. S. Beng. p. 159; Swinhoe, Ibis, 1861, p. 409, 1867, pp. 29, 404; P. Z. S. 1863, p. 276; Jerdon, Birds of India, ii. p. 215.

H. leucoschistus, Swinhoe, Ann. Mag. Nat. Hist. 1870, vi. p. 154; P. Z. S. 1871, p. 365.

Hab. Nepal (*Hodgson*); Sikim (*Elwes*); Bhotan (*Pemberton*); Tenasserim (*Blyth*); Moupin (*David*); China (*Swinhoe*).

Above dark slaty-grey, with a narrow white band across forehead from eye to eye; lores, cheeks, chin, and primaries black, the latter (except the first two) showing a white mark below the white bar. Throat, breast, belly, rump, and tail-coverts white. Eyes dark brown; beak black; feet and legs fleshy white. Length 8½ to 9 inches; tail 4½ to 5; wing 3½; tarsus 1; bill, from gape, ¾.

This species seems to have the widest range of any of the genus; for unless we recognize the Chinese *H. leucoschistus* as distinct, it is found from Nepal through Szechuen to near Amoy, and southwards as far as the mountain-ranges of Tenasserim.

After having, through Mr. Whitely's permission, carefully examined the specimens of this species in Mr. Swinhoe's collection, I cannot see that there is any good or constant difference between Chinese and Indian specimens of this bird; and Mr. Swinhoe has twice expressed himself to the same effect (Ibis, 1867, p. 404, and P.Z.S. 1863, p. 276), though he has since discovered that the Chinese bird differs in having the bill straighter along the culmen, and the gonys more ascending. This, to my eye, is quite imperceptible; and as in his list of Chinese birds Mr. Swinhoe ignores this point, and mentions as the only difference the variable amount of white on the primaries and under wing, I cannot but think that it would have been better to have waited till he had made his case a little clearer. The specimens collected by the Abbé David at Moupin, on the borders of Thibet and China, are quite similar to the Indian bird.

H. schistaceus is not common in Sikim, and keeps to the lower elevations, so far as I have observed. Its habits are similar to those of its congeners; but nothing is recorded of its nidification. M. de Grijs told Mr. Swinhoe that he saw these birds on the margins of pools in the hills about 130 miles inland from Amoy, and that they frequently uttered twittering notes not unlike those of the Sandpiper, but louder.

3. HENICURUS IMMACULATUS.

Enicurus immaculatus, Hodgs. As. Res. xix. p. 190; Gray's Zool. Misc. p. 83, 1844; Cat. Hodgs. Coll. in B.M. p. 76; Blyth, J. A. S. B. xvi. p. 157; Cat. Birds Mus. As. Soc. B. p. 159; Horsf. & Moore, Cat. Birds in Mus. E. I. Comp. i. p. 346; Godwin-Austen, J. A. S. B. 1870, p. 107; Jerdon, Birds of India ii. p. 213.

Hab. Nepal (*Hodgs.*); Sikim (*Elwes*); Khasia Hills (*Godwin-Austen*); Aracan (*Blyth*); Assam? (*Griffith*) (*errore* Afghanistan).

Head, neck, back, wings, and throat black; breast, belly, rump, sides, tail-coverts, and wing-bar white; a white band on the forehead about $\frac{3}{8}$ inch broad, extending from above the eye across the base of the bill. Beak black; eyes dark brown; legs and feet fleshy white.

Female like the male, but slightly duller-coloured on the head. Young birds are of a duller black, and have no white on the forehead.

Length $8\frac{1}{2}$ inches; tail $4\frac{1}{4}$ to $4\frac{3}{4}$; wing $3\frac{1}{2}$; tarsus 1; bill from gape $\frac{3}{4}$.

This species, which, in the Himalayas, is the rarest of all the genus, appears to be commoner in the hill-ranges of Burmah and Aracan. I shot one pair on April 4th, 1870, by the side of a narrow jungle-torrent, at a place called Sivoke, where the Teesta river debouches from the Sikim mountains into the plains. They were apparently breeding, and exactly resembled *H. guttatus* in flight and habits.

Of this pair the male has hardly any white tips to the secondaries, whilst in the female they are quite conspicuous. This seems to be a most variable character in other species of the genus.

This bird much resembles *H. schistaceus*; but adult specimens may be distinguished by the broader white band on the forehead, as well as the colour of the back, and immature ones by the absence of the conspicuous white mark on the primaries, which in *H. schistaceus* extends beyond the primary wing-coverts.

4. HENICURUS SCOULERI.

Enicurus scouleri, Vigors, P. Z. S. 1830-31, p. 174: Gould, Cent. Him. Birds, pl. 28; Birds of Asia, pt. xviii.; Jameson, Calc. Journ. Nat. Hist. vii. p. 363; Blyth, J. A. S. B. xvi. p. 157; Cat. Birds in Mus. As. Soc. Cal. p. 159; Beavan, Ibis, 1868, p. 75; Horsf. & Moore, Cat. Birds in Mus. E. I. Comp. i. p. 347; Gray, Cat. Hodgs. Coll. in B. Mus. p. 76; Adams, P. Z. S. 1858, p. 489, 1859, p. 179; Jerdon, Birds of India, ii. p. 214.

Henicurus scouleri, Swinhoe, P. Z. S. 1871, p. 365; Stoliczka, J. A. S. B. 1868, p. 47.

Enicurus nigrifrons, Hodgs. MSS., Gray, P. Z. S. 1859, p. 102; Jerdon, Birds of India, ii. p. 215; Godwin-Austen, J. A. S. B. 1870, p. 107 (?)

E. heterurus, Hodgs.

E. scouleri vel *heterurus,* Hodgs. Gray's Zool. Misc. 1844, p. 83.

Hab. Cashmere (*Adams*); Chergaon, 11,000 ft., et Kotegurh, 6000 ft. (*Stoliczka*); Simla (*Beavan*); Nepal (*Hodgson*); Sikim (*Elwes*); Khasia Hills (*Godwin-Austen*); Moupin (*David*); Bhotan (*Pemberton*).

Back, neck, and head, except a white frontal patch, black; breast, belly, rump, tail-coverts, and broad bar on wings white; tail short, the centre feathers black except at the base, gradually showing more white to the outer pair, which are wholly white; the tail-feathers nearly equal in length.

The young (described by mistake as another species) is of a duller black, without any white on the forehead, and has the breast mottled with black and white. Bill black; eyes dark brown; legs fleshy white (not black, as stated in the 'Birds of India' by mistake). Length $5\frac{1}{2}$ inches, wing 3, tail 2 to $2\frac{1}{2}$, tarsus $\frac{7}{8}$, bill $\frac{1}{2}$.

This little *Henicurus,* which differs from all the rest in the comparative proportions of its tail, legs, and bill, is found from Cashmere to East Thibet, but seems to be commonest in the Eastern Himalayas.

Dr. Stoliczka found it in the valley of the Sutlej, more confined to the hills of the outer ranges, but not uncommonly found up to 8000 feet; while Adams says that in Cashmere it prefers the streams of the higher ranges. I found it common in Sikim; and it is the only species which I observed in the valleys of the interior, where it frequents rivers in preference to the smaller streams. As Jerdon has related, it often contends with *Ruticilla fuliginosa* for a favourite rock in the midst of a boiling torrent, where, cleverly avoiding the waves, it searches among the great boulders that are rolled down from the mountains for the larvæ of various water-insects, which form its chief food. The highest point where I observed it was on the Lachoong river, one of the great branches of the Teesta, 10,000 feet above the sea. The nest and eggs are said to be similar to those of *H. maculatus,* but smaller.

5. HENICURUS RUFICAPILLUS.

E. ruficapillus, Temm. Pl. Col. 534; Blyth, J. A. S. B. xvi. p. 155; Cat. Birds in Mus. As. Soc. p. 159.

E. diadematus, Müll. (ex Boie, MS.) Tijds. voor Nat. Gesch. 1835, p. 346.

Hab. Java (*Blyth*); Sumatra (*Müller*); Malacca (*Maingay*).

Head, cheeks, sides of neck, and back rich reddish brown; belly, rump, gorget, and narrow wing-bar white; breast-feathers white, broadly edged with black; chin and throat black, a narrow band on the forehead white, bordered with black.

In some specimens, which, according to Temminck, are males, the chin and throat are white and the lower part of the back black instead of red. As, however, none of the specimens which I have examined had their sexes noted, I am unable to verify this statement. According to Müller the female is smaller than the male, and has the back of a darker rufous. Length 7½ inches; wing 3½; outer tail-feathers 3; tarsus 1⅛; beak ⅞. Irides brown; beak black; legs, feet, and claws fleshy white.

Blyth says (J. A. S. B. xvi. p. 155):—"This fine species, preeminently typical of its group, strongly exhibits, in the form of its bill and the rufous colouring of its head and nape, the Myiotherine affinity of the genus; the bill has the upper mandible hooked over at the top much as in *Cinclus,* minus the hook and nareal orifices; and it is the same form of bill as reappears in *Eupetes.* It is a very interesting species, as indicating more than any other the affinity of the group."

I should be inclined to think that this species is more aberrant than any from the type of the genus; and were it not connected with the rest through *H. frontalis,* which it resembles greatly in its proportions, I should be disposed to place it as the type of a subgenus.

Temminck says of this bird (Rec. d'Oiseaux, 90th livraison) that it was first received from Pallambang, Sumatra, and is found very rarely in Java. "It is difficult to approach this very shy bird, which frequents the borders of torrents in the most inaccessible ravines of the wooded mountains."

Müller says, "I have only met with it hitherto near some of the small rivulets of the shore-mountains at the base of Boengoes (Sumatra). It is there found jumping on dry-lying rolling stones, screaming vociferously, just as Boie mentions is the habit of *H. coronatus* and *velatus*."

6. HENICURUS LESCHENAULTI.

Turdus leschenaulti, Vieill. N. Dict. Hist. Nat. xx. p. 269 (1818); Gal. des Oiseaux, pl. 145.

Enicurus coronatus, Temm. Pl. Col. 113.

Motacilla speciosa, Horsf. Linn. Trans. xiii. p. 155; Zool. Res. in Java, 1824; Lath. Gen. Hist. vi. p. 319.

Enicurus leschenaulti, Gray, Gen. Birds, i., p. 204; Horsf. & Moore, Cat. Birds in Mus. E. I. Comp. vol. i. p. 345; Swinhoe, P. Z. S. 1863, p. 276.

Henicurus speciosus, Swinhoe, Ibis, 1861, p. 265; et 1862, pp. 261, 264.

Henicurus sinensis, Gould, P. Z. S. 1865, p. 665; Swinhoe, Ibis, 1867, p. 404, and P. Z. S. 1871, p. 365.

H. chinensis, Gould, Birds of Asia, pt. xviii.

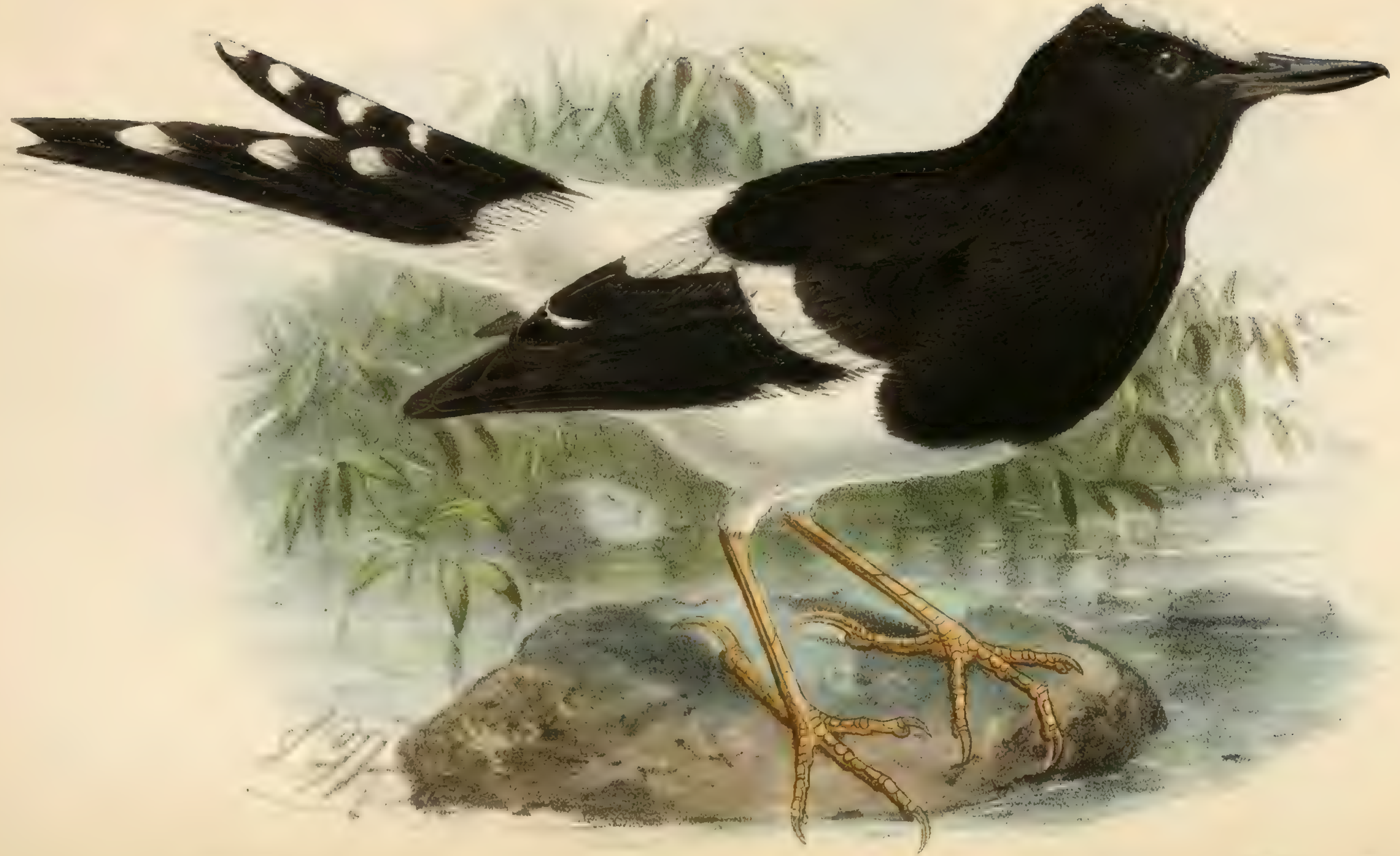
Hab. Java (*Horsfield*); Moupin (*David*); China, Fokien prov. (*Swinhoe*).

Crown, rump, belly, tail-coverts and wing-bar white, the rest black; the white feathers of the head more or less elongated, but not forming a crest.

Length 10 inches; wing $4\frac{1}{4}$; tail $5\frac{3}{4}$; beak from gape 1; tarsus $1\frac{1}{4}$.

Mr. Gould has described specimens of this bird from China as *H. sinensis*; but after comparing a number of specimens from Java and China, I am unable to see that the character upon which Mr. Gould relies (namely the smaller frontal patch) is sufficient to rank the Chinese bird as a good species; and Mr. Swinhoe, though he admitted the distinctness of the species in his list of Chinese birds (P. Z. S. 1871, p. 365), wrote as follows in 'The Ibis' (1867, p. 404):—

"I see that Mr. Gould has made a new species of the Chinese



pied *Henicurus*; the chief peculiarity of his *H. sinensis* being the less extent of white on the forehead.

"I have three specimens from Foochow varying a good deal in the expansion of this white. I carefully compared my skins with those in the E. I. Museum of true *H. speciosus* (Horsf.), and, though anxious to find a difference, could discover none. I suspect that the greater or less extent of frontal white is a sexual difference." In P. Z. S. 1863, p. 276, Mr. Swinhoe says of this bird:—"Never procured by me in China, except on the hills round Foochow, where I have procured it both in winter and summer. My specimens from that locality correspond entirely with Javan skins."

Horsfield says of *H. leschenaulti*, in his Zoological Researches in Java, "It is very locally distributed, and uniformly deserts the neighbourhood of populous villages. It is almost entirely confined to the southern coast of Java, which abounds in small streams descending rapidly from the hills and shaded by luxuriant shrubs. Here I first discovered this bird in the year 1809. I afterwards met with it again in the district of Karang-bollong, and in the provinces south of Kediri. In more central situations, it frequents the banks of an elevated lake near the declivities of the mountain Prahu, where I found it more numerous than in any other part of Java."

7. HENICURUS FRONTALIS. (Plate IX.)

E. frontalis, Blyth, J. A. S. B. xvi. p. 156; Cat. Birds in Mus. A. S. p. 159; Horsf. & Moore, Cat. Birds in Mus. E. I. Comp. i. p. 346; Bp. Consp. Av. p. 251.

Hab. Malacca (*Cantor, Maingay, Linstedt*).

Plumage like that of *H. leschenaulti*. Breast black; belly, bar on wings, crown, and forehead white, the feathers of the head elongated like those of *H. leschenaulti*. Length about 8 inches, wing $3\frac{3}{8}$, tarsus $1\frac{1}{8}$, tail $3\frac{1}{2}$ to 4, bill from gape $\frac{15}{16}$, culmen $\frac{11}{16}$.

This species, which in its size and proportions strongly resembles *H. ruficapillus*, is in plumage similar to *H. leschenaulti*. It appears to be rare, and has only been found, so far as I am aware, in the Malay peninsula. The Plate is taken from a Malacca specimen kindly lent to me by Mr. Wallace.

8. HENICURUS MACULATUS.

Enicurus maculatus, Vigors, P. Z. S. 1830–31, p. 9; Gould, Cent. Him. Birds, pl. 27, et Birds of Asia, pt. xviii.; Cat. Hodgs. Coll. in B. M. p. 76; Jameson, Calc. Journ. Nat. Hist. vii. p. 363; Blyth, J. A. S. B. xvi. p. 156; Cat. Birds in Mus. As. Soc. p. 159; Ibis, 1867, p. 29; Horsf. & Moore, Cat. Birds in Mus. E. I. Comp. i. p. 346; Adams, P. Z. S. 1858, p. 489, & 1859, p. 179; Jerd. Birds of India, ii. p. 212; Beavan, Ibis, 1868, p. 75; Brooks, Ibis, 1869, p. 57; Stoliczka, J. A. S. B. 1868, p. 47.

Enicurus fuliginosus, Hodgs. As. Res. xix. p. 190.

Hab. Cashmere (*Adams*); Pangi, 9000–10,000 feet (*Stoliczka*); Kangra (*Elwes*); Kumaon (*Brooks*); Simla (*Beavan*); Nepal (*Hodgson*).

Head, breast, wings, and back black. The feathers of the back are each tipped with a white mark or lunule, which run together on the neck, and form a mottled collar of black and white; round patch on forehead, belly, rump, flanks, and tail-coverts white; wing-bar conspicuous; bill black; feet and legs fleshy white; irides dark brown. Length 10 to 10½ inches; wing 4; tail 5¾; bill, from gape, ⅞; tarsus 1⅛. The immature bird is of a dull black, without white forehead or spots. The female has the top of the head tinged with brown.

The Spotted Fork-tail is one of the most characteristic Himalayan birds, and, being common in the neighbourhood of the hill-stations at an elevation of 6000 or 7000 feet, is known to most Anglo-Indians. Its habits have been well described by Adams and also by Jerdon, to whose invaluable work I refer those who wish to know more of them. It has been found, by Dr. Stoliczka, in the Sutlej valley, at elevations of from 5000 to 11,000 feet; but it does not extend, in that locality, eastward of the large forests into the Thibetan climate. Adams says (P. Z. S. 1859, p. 179) that it is common on the mountain-streams southwards of the valley of Cashmere. Its nest was taken by the late Mr. Horne, near Nynee Tal, on the 27th of May. It was placed in the side of a rocky watercourse; and the eggs, which were three or four in number, were 1 inch by ·625, white, with a faint shade of green, and speckled rather sparingly with rusty brown.

9. HENICURUS GUTTATUS.

Enicurus guttatus, Gould, P. Z. S. 1865, p. 664, et Birds of Asia, pt. xviii.; Blyth, Ibis, 1867, p. 29.

H. maculatus, Godwin-Austen, J. A. S. B. 1870, p. 109; Jerdon, Birds of India, ii. p. 212; Beavan, Ibis, 1868, p. 75 (in part).

Hab. Nepal (*Hodgson*); Sikim (*Elwes*); Khasia (*Godwin-Austen*); Aracan? (*Blyth*); Burmah (*Jerdon*).

Head, breast, and back black; the latter marked with round or oblong white spots, from the size of a No. 4 shot on the lower back to that of a pea on the neck, where they are closer together, and form a collar, less conspicuous than in *H. maculatus*; a circular patch on forehead, belly, flanks, tail-coverts, and wing-bar white.

Female the same, with a tinge of brown on the back of the head. Irides dark brown; legs and feet fleshy white; bill black.

The young is of a dull brownish-black, and has no white on the forehead or back.

Length $9\frac{1}{2}$ to $10\frac{1}{2}$ inches; tail 5 to 6; bill, from gape, $\frac{7}{8}$; tarsus $1\frac{1}{8}$; wing 4.

This species was not distinguished from *H. maculatus* until 1865, when it was separated by Mr. Gould under the appropriate name of *H. guttatus*. Though several other distinctive marks are given by which it is said to differ from its western representative, such as its smaller size, narrower tail-feathers, and smaller patch on the forehead, I am unable, after comparing a large series, to find any constant difference except in the shape and arrangement of the white spots on the back; and I believe that when a large series is procured from different parts of Nepal, it will be found impossible to define the limits of the two forms. Mr. Hodgson procured both in the central Himalayas; but as his collectors travelled over the whole of Nepal, which extends about 500 miles from east to west, and no localities are given with any of his specimens in the British Museum which I have examined, it is at present impossible to say how far to the north-west *H. guttatus* ranges, and whether it interbreeds with *H. maculatus* or not. Mr. Hodgson himself never distinguished the two species; and he was by no means backward in separating supposed species when any appreciable difference could be discovered between two birds.

As, however, I have been able, without looking at the labels, to separate a considerable number of specimens of these representative forms when mixed together, I feel hardly justified in refusing specific rank to *H. guttatus*. I have observed it in Sikim at elevations of from 3000 to 7000 feet in the outer ranges of hills only, and found it paired on the 17th of May, when, from the appearance of the sexual organs, breeding must have commenced. Dr. Jerdon's account of the habits of *H. maculatus* applies equally well to this species.

XXXII.—*On the Genus* Colius, *its Structure and Systematic Place.* By Dr. James Murie, F.L.S. &c.

(Plate X.)

[illegible] p. 229.

By whatever motive we are impelled to study ornithology in its classific aspect, when first the characters of two species are pointed out to us, they appear clear and readily discernible. Proceeding to genera, they too dwell in our mind's eye as axioms, and so on to larger groups.

But soon the time comes when we acknowledge distinctions which are not so obvious. Instead of that sharp definition which we had believed was the attribute of birds in their relations to each other, we are compelled to admit that there is often an interweaving of form, difficult to disentangle and hard to express in words.

The subject of this paper is representative of a group of birds (the Colies) requiring nicety of reasoning to appreciate the value of its characters and their degree of relation ship to those of other forms.

I. POSITION ASSIGNED BY VARIOUS WRITERS TO THE COLIES.

The birds in question are by no means showy, so far as their dress is concerned. The familiar name of "Mousebirds," which the Dutch colonists of the Cape and others have bestowed on them, is not inapt. It expresses their pervading or dominant colour, and suggests their odd propensity to creep amongst the branches.

A *résumé* of the chief ornithologists who have treated of *Colius* systematically, dates from Brisson*. He it was who stamped the name on the genus, and classed it amongst the Passeres, after the Buntings and Larks (*Emberiza* and *Alauda*), and before the Bullfinches (*Pyrrhula*). Buffon† subsequently placed it between the Bullfinches and the Manakins.

Levaillant's work on African ornithology contains a very elegantly written little chapter respecting the characters and habits of the Colies‡—one worthy of perusal to those who would take a leaf out of nature's book. That eminent naturalist brings them in between the Woodpeckers and Orioles; whilst he asserts that they do not belong to the Bullfinches, as Buffon had marked them.

No hint from the above fellow countryman seems to have been taken by Cuvier§, who, depending on beak-character, retained it in the Sparrow tribe—*Pyrrhula* and *Corythus* ranging on the one side, and *Buphaga* on the other. The traveller Burchell|| suggested its proximity to *Corythaix*. Vieillot¶ about the same time saw likeness in it to the Rollers. Lesson** gives in sequence the Crossbills (*Loxia*), Colies, and Plant-cutters (*Phytotoma*). A slight remove from the last was made by Swainson††, who gave *Phytotoma* precedence to *Colius*—the true Plantain-eaters (subfam. Musophaginæ) coming after, and all three under the family Musophagidæ.

In his 'Genera of Birds'‡‡, the late Mr. G. R. Gray adopted, almost without change, an arrangement like the last, as did Bonaparte in his 'Conspectus.' In the much more recent 'Hand List'§§, Gray's final ornithological labour ere called away from amongst us, the classification runs:—Alaudidæ,

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[*] Ornithologie, tome iii. p. 304.

[†] Hist. Nat. Des Oiseaux, tome iv. p. 400.

[‡] Oiseaux d'Afrique, tome vi. p. 32.

[§] Règne Animal.

[||] Travels in South Africa, vol. i. p. 214 (footnote).

[¶] Encycl. Méth. p. 864.

[**] Manuel, tome i. p. 334.

[††] Nat. Hist. and Classif. of Birds, vol. ii. p. 296.

[‡‡] Vol. ii. p. 392.

[§§] Vol. ii. 1870, p. 123.

Colidæ, Musophagidæ, Opisthocomidæ, and Bucerotidæ. Rüppell's 'Monograph'* deals more with the specific forms of *Colius*, and no fresh discussion of its affinities is entered into. Hartlaub † retains it among the Musophagidæ, and near the Pyrrhulinæ.

Most of the foregoing writers either have taken for granted that the Passerine characters were genuine, and its affinities tolerably clear, from general outward appearance, or on the same principle saw fit association with the Plantain-eaters. Nitzsch‡, in assigning it likeness to the latter and to the curious *Opisthocomus*, broke new ground in his reasons, besides seeing likeness to the Hornbills and others; whilst Wallace§, from an entirely different point of view, deduced association of a novel kind; which has been uttered with so much perspicuity that I may be pardoned for here quoting his words in full.

"We have now only one more group to introduce into our Scansores; but it is one of extreme interest, as tending in some degree to fill up the wide chasm which separates the Psittacidæ from all other birds. This we believe is done by the Coliidæ, a small group of birds peculiar to Africa, and which have been generally classed as Finches, from their small size and thick beak. The particulars which Le Vaillant gives of their habits are, however, exceedingly curious, and show a resemblance to the Parrots which no other birds exhibit. They live entirely on fruits, never touching either seeds or insects; they never perch or jump; they walk with the whole tarsus applied to the ground, creeping, as it were, upon their belly; they are very fleshy, and weigh twice as much as another bird of apparently the same size; for their feathers are so short and so closely laid upon their body that they are really much larger than they appear. They have also very weak wings, and can fly a very short distance. They climb up to the top of a tree or bush to fly to another, and in doing so lose elevation so as generally to arrive at the foot of it. They climb one foot after the other, and help themselves on with their beaks.

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* "Monog. der Gattung *Cygnus, Ceblepyris,* und *Colius,*" Mus. Senckenb. p. 41.

† Syst. der Ornith. Westafrika's, p. 155.

‡ Pterylographie.

§ Ann. and Nat. Hist., Sept. 1856, p. 213.

"Now, almost the whole of this description will apply to some of the Parrot tribe and to no other birds. Their bill is an approach to that of the Parrot, the upper mandible being thick, much curved, and acutely pointed, while the lower is much smaller, and nearly straight. Their feet are very peculiar, the hind toe being small and capable of being turned forward. The tongue is described as cartilaginous and flat—one step from the ordinary horny-tipped tongue to the fleshy one of the Psittacidæ. We consider therefore the Coliidæ to be more nearly allied to the Parrots than any other birds, and to be an isolated link serving to connect them with the other Scansores in the direction of the Musophagidæ."

On very different grounds, M. Emile Blanchard*, a good authority respecting the osteology of birds, offers the following opinion:—"Un petit groupe d'oiseaux d'Afrique, les Colious (*Colius*, Briss., *Coliidæ*, Bp.) ont été généralement classés parmi les Passereaux. Au contraire, plusieurs zoologistes, d'après la considération de leur plumage, ont cru devoir les rapprocher des Musophages. Or je ne connais pas le sternum des Colious, ce qui est vraiment fâcheux; mais M. Ed. Verreaux m'ayant obligeamment donné un individu *en peau* de l'une des espèces de ce genre, j'ai pu étudier les caractères des membres et de la tête. Cette étude, on le verra par la suite, me conduira à établir que les Colious sont étroitement liés aux Rolliers."

Prof. Huxley†, without assigning any explicit reason further than "The first toe turned forwards, as well as the others," locates the Coliidæ as a separate family of his Coccygomorphæ.

I might quote Layard‡, Blanford§, and Dr. Otto Finsch|| as among recent writers who have had something to say regarding the Colies; but they all associate them either alongside or under the family Musophagidæ¶. As to the Colies' habits they mainly substantiate the earlier authorities. Layard, however, mentions

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* Ann. des Sciences Nat. tome xi. p. 138.

† "On the Classification of Birds," P. Z. S. 1867, p. 466.

‡ Birds of South Africa, p. 221.

§ Observations on the Geology and Zoology of Abyssinia, pp. 56, 317.

|| Trans. Zool. Soc. vol. vii. p. 276.

¶ I regret omitting Schlegel's paper on *Colius*, Amsterdam, 1857, and Eyton's notice, neither of which I could conveniently lay hands on.

that, according to the natives, several birds lay their eggs in one nest—a remarkable circumstance, if true. Mr. William Jesse, who accompanied the Abyssinian expedition, and whose specimens have been described by Dr. Otto Finsch, notes (*l. c.*) that the contents of the stomach are chiefly fruit and berries, but in one specimen mimosa-seeds were found. The latter fact is at variance with Levaillant's observations.

II. Pterylosis and points of interior Organization.

Nitzsch[*], above all others a most skilled observer of plumage, says that *Colius* "has a remarkable arrangement of the feathers, and can only be compared in this respect with *Buceros*."

He ranges it under his group of Amphibolæ, in which *Corythaix* and *Musophaga* precede and *Opisthocomus* follow. From the first two of these it is distinguished by the stems of the inferior tract being dilated, and no diverging outer branch; from the third by its dorsal tract being dilated on all sides and sparsely feathered. The rectrices are 10, the two outermost exceedingly small; remiges 19, ten inserted on the pinion, 5th longest, the first four graduated.

According to Johannes Müller[†], *Colius* has a simple thick vocal muscle; *Corythaix* has no muscle to the inferior larynx. Owen's notes on the Purple-crested Touraco (*C. porphyreolopha*, Vig.)[‡] and my own observations coincide.

The tongue is said to be flat and cartilaginous, with horny papillæ[§], therefore differing alike from the Musophagidæ and the Finches.

Of the stomach, Rüppell says, it is of a semimuscular kind. Whether cæca are present or absent in the intestines has not been recorded, so far as my search amongst the literature extends.

III. Description of the Skeleton of *C. leucotis*, Rüpp.

1. *Bones of the Chest.*—In proportion to the size of the bird,

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[*] Pterylographie, Engl. Trans. Ray Soc. 1867, p. 107.

[†] Bericht d. Akad. d. Wiss. zu Berlin, 1841, p. 179. Müller's Archiv, 1842, p. 11; and Abhand. d. Königl. Akad. Berlin, 1845–47, p. 330 &c., pl. v. figs. 9 to 12.

[‡] P. Z. S. 1834, p. 4.

[§] Rüppell, Monog. already quoted, p. 41.

the breast-bone or sternum is long and remarkably shallow. Indeed this want of depth is a striking feature, especially as regards the pectoral plates: these are flattish and chevron-shaped; their united cross diameter is barely more than half their length. In one specimen (Pl. X. fig. 13) I found the outer edges of the breast-plate possessed three denticulations, giving a serrate appearance to each margin; but in another, obtained from the same locality, the borders were only slightly sinuous and free from notching.

On each side are two long delicate bony rods, the "xiphoid processes," an "external" and an "internal," the tip of the breast-plate being named the "middle" one. The latter is a trifle the shortest, the former two pairs terminally pedate. The external xiphoid process runs on almost to the rib-facets; the internal process is shorter. The keel shallows gradually backwards with a very gentle curvature. Its anterior upright margin is larger, below moderately produced, and above running into the prominent sharp rostrum. This latter is indented, but barely cleft, at the tip, and has a small fossa internally at its base, which connects the shallow grooves lodging the coracoids. The elongate triangular costal process, partially overlapped by the coracoid, has four facets for as many ribs.

The furcula (clavicle) at the sternal end possesses an intermediate inflected process, the interclavicle or "hypocleidium." The lower half of each furcular limb is flattened from above downwards; the upper half, on the contrary, is laterally compressed, and widens out at its scapular junction into what goes by the name of "præcoracoid."

The bladebone (scapula) is narrow, thin, and ensiform, with a very slight terminal curvature.

The shaft of the coracoid is on the whole rounded. Its sternal end, the "epicoracoid" of writers, may be compared to the blade of an oar. Superiorly the bone is united to the scapula with moderate enlargement; and there is a short depending process of bone, the "mesocoracoid" of Parker. Each coracoid is a trifle shorter than the sternal plate.

There are eight ribs on either side of the thorax. The first and second are short, and do not reach the sternum. The third to the sixth are sternally attached. Recurrent processes obtain from the second costa to the sixth.

2. *Vertebræ and Rump-bones.*—The neck-vertebræ are eleven or twelve, according as we accept the last one (with a very short riblet) as belonging to this series or not. In the back or dorsal region (that is, as far as the pelvic bones) there are eight vertebræ. The spinal portion of the pelvis appears to be composed of ten or eleven closely united vertebral elements. These segments are indistinct, and appreciable only by the markings of transverse processes, visible from above. Of free tail-vertebræ seven obtain. The final one of all, or, as it has been termed, "pygostyle," possibly consists of a couple or more pieces, but so consolidated together that they may, for all practical purposes, be recognized as but one.

Put in formula, therefore, the numbers would run :—

11 or 12 Ce; 8 D; 10 or 11 Ls; 7 Cd =36 or 38.

The rump-bone, or pelvis*, has been taken into consideration but by few ornithologists; and yet it is not devoid of characters.

The iliac bones chiefly occupy the dorsal region. The rear halves of these in *Colius* are together wide and quadriform, with a smooth moderately convex surface. The fore halves narrow considerably, are concave, and set obliquely towards the spine. The latter is defined from the ilia quite in front; but coalesces with them posteriorly. A line drawn through the foramina of the hip-joints (acetabula) gives an area in front, "præacetabular," that behind being termed the "postacetabular." In *Colius,* the former is narrower than it is long; the reverse obtains in the latter. The interior, or renal surface is flat, shallow, and corresponds in outline to that described above.

The ischium forms a lateral flank, posterior to the acetabulum; and, whilst long and produced into a tapering process behind the "tuberosity," is nowhere very deep. Below it is the "pubis," a delicate lengthened osseous rod. Above each acetabulum is a small eminence and facet, from which a line drawn backwards marks the junction of the ilium and ischium—this being sharp but not specially overarching. The ischial foramen beneath is of a long oval figure.

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* Eyton ('Osteologia Avium') duly notes its importance. Huxley, "On the Classification and Distribution of the Alectoromorphæ and Heteromorphæ," P. Z. S. 1868, p. 298, seizes its taxonomic points. Alph. Milne-Edwards appreciates diversity of conformation in his great work 'Oiseaux Fossiles.'

3. *Wing- and Leg-pieces.*—Of the wing-bones, the humerus is short and relatively stout, both in the head, which is capacious, and in the rounded shaft. The pneumatic foramen, as usual, opens under the head. A small tubercle juts out above the outer lower condyle.

The bones of the forearm barely exceed the humerus in length. The radius, more usually slender, in this case has proportionally a stout shaft compared with the ulna. Metacarpals and phalanges are each and all of goodly thickness; and the first metacarpal is broad. A delicate plate, or partial bridge of bone, passing from the first to the second metacarpal at their upper (proximal) ends is noteworthy.

The femur is by no means so powerful as the humerus, their length being almost identical. Its trochanter is rather rounded, and not prominently ridged.

The tibia, again, far exceeds the ulna in magnitude; and the fibula is diminutive and spicular. The upper anterior tibial tuberosity (or "cnemial" ridge) is not prominent as in some birds. Inferiorly, there is a small intercondylar bridge of bone, through which the extensor tendons pass at the joint; but some of these are also restrained by ligamentous bands situated obliquely. A tiny tubercle of bone above the external condyle marks the outer attachment of the latter.

The tarsus, or, as more frequently named by anatomists, tarso-metatarse, is about two thirds the length of the tibia, and has a more antero-posteriorly compressed shaft. In front a longitudinal, but somewhat oblique convex ridge traverses from the upper outer margin to the lower middle and partially inner digital knuckle. Behind, the fluting of the shaft is straighter and to the inner side. The proximal or articular end of the bone, which plays against the bottom of the tibia, is concavely incised at the middle of its fore border. At its hind border is the so-called "calcaneal" eminence—in this case small, semilunar, and pierced towards its inner side by a foramen. The distal or inferior articular end of the tarso-metatarse is relatively wide, and provided with three grooved knuckles (condyla), of nearly equal length, for as many of the outer toes.

That which is named the metatarsus is a diminutive canary-seed-shaped ossicle, which lies a trifle behind the inner lowermost end of the shaft of the tarsus. It is so placed that the axis of the first or inner toe (hallux) is directed partially forwards and inwards.

Although all the four toes of *Colius* are affirmed to be directed forwards, I find that the inner (hallux) is perfectly capable of being thrust nearly backwards. This may not be its natural condition; the joint, however, displays ready movement in a semicircle. I think it can hardly be doubted that for those habits which the Colies possess in perfection (clambering along branches and stems, traversing sideways, and suspension) it will be admitted that a certain amount of opposition of the digits is necessary. Unlike the Perchers, which require grasping-power attained by complete reversion of the first toe, and the true Scansores, with the fourth toe also turned behind so as to seize the slightest inequality, the Colies have the inner toe capable of wide abduction. It may therefore be compared to a human hand strongly clawed, which, by a kind of griping or squeezing of the digits, securely fastens to the slightest inequalities of surface.

The inner toe is shortest, the third longest, and the second and fourth subequal. All are armed with strong, laterally compressed, curved claws, which are inferiorly grooved. The usual avine number of the phalanges obtains, viz. 2, 3, 4, 5 respectively, in the digits, counting from within outwards.

The segments of bones comprising the wing and leg of birds bear a certain ratio of length the one to the other. When closely investigated, it appears they often tally with the avine grouping drawn from other characters. I shall, in this place, only record the absolute length, in inches and decimals, of one species of the Colies examined by me. I give elsewhere* the proportions and comparisons in full, so need not trouble the reader beyond an after statement of probable alliances drawn therefrom.

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* "Anatomy of the Alcedinidæ" (Kingfishers), now in the press.

C. leucotis, Rüpp.

	Humerus.	Ulna.	Meta-carpus.	Mid pha-langes.	Total length.
	in.	in.	in.	in.	in.
Wing	0·95	0·9	0·55	0·45	2·85
	Femur.	Tibia.	Tarso-metatarse.	Mid-toe phalanges.	Total length.
Leg	0·9	1·35	0·95	0·8	4·0

4. *Skull and Mandible.*—Both the tip of the latter and the whole of the beak are ensheathed with what, in the dried specimen, is a very hard, terminally thick, horny case. In the beak it projects with a slight hook, less or more marked according to the species. In the lower jaw, as in Parrots, besides clothing the bony contour, it pouts at the symphysis in a deflected narrow gutter, which, however, is overlapped by the upper mandible.

The bones of the lower mandible are not very strong, being thin and laterally compressed, but of some depth. Each half or ramus has a low antero-posterior arch, the bend being most perceptible at the narrowed apex. There is an elongate fissure or imperfect ossific space about the middle of the bone, at what is termed the "dentary" division by embryologists. At the joint or articular end the bone is moderately developed. The cavity wherein fits the "quadrate" is deepish. There is a well-marked internal angular process. Postarticular process is well-nigh obsolete; but there is a pronounced angle quite at the inferior extremity of the jaw.

The skull does present certain points in common with some of the Musophagidæ; but it is also undeniable that it closely resembles some of the Finches', not alone in size but in each exterior aspect!

The hinder segment, or that containing the brain, is broad, full, and rounded, and of considerable depth. At the same time the top of the skull is not so very high, the ascent from the beak having a gradual slope.

Superiorly the frontal space between the orbits is of medium width, and rather short on account of the postfrontals coming well forwards. It is deeply hollowed. The prefrontal processes do not protrude much; and the postfrontal processes are likewise short, as are the zygomatic. The septum orbitale has a considerable open space below; and each orbital plate is partially membranous.

As regards the bones which surround the occipital foramen, and that in front, which has been named "basitemporal" by Parker*, I need only say they are plump.

The articular or quadrate bone has a short orbital process. Its inferior or distal end is unlike the Parrots', and similar to some of the Raptores' in the internal and external knuckles being subequal in depth, the former compressed and set obliquely inwards, whilst the posterior knuckle is short and flat. The pterygoid bars are of medium stoutness and length, and directed well inwards. Jugal rods slender.

The most important features of the base of the skull have yet to be mentioned, namely the palatal construction. I regret to say, however, that slight injury to the parts makes me speak with a degree of caution; but I believe, and as far as I could make out, they are as I shall describe. Quite in front the inferior surface of the præmaxillæ forms a short, somewhat triangular or arrow-headed concave area. Widely apart from this start rearwards the palate-bones. The fore half of each of these, as in the Finches and some of the Raptores, is narrow, rod-like, and convex superficially, and nearly horizontal, or with a trifling outward tilt. The hind half widens out into a great thin plate of bone, truncate posteriorly, and with a decided inward obliquity. The inner margin possesses a longitudinal groove, and meets its fellow of the opposite side, they together lying on the long central beam inferiorly dividing the orbital cavities and termed the "rostrum of the basisphenoid."

The maxillaries do not appear to obtrude much into the basal aspect of the beak, at best only to be detected on the outside of the præpalatals. The inward processes from these, called "maxillo-palatines" by Huxley† (which in many birds contribute much to form the roof of the mouth), are in *Colius* relatively small. They may be spongy or slightly lamellar; but this I cannot aver with certainty from the condition of the specimen; at all events they intrude but a slight way beyond the palatal rods, and leave a wide middle space betwixt them. As respects the presence of a vomer, there is apparently a short one, tapering rather than abruptly truncate anteriorly, and not visibly deeply cleft behind.

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* Fully traced in its development in many birds; see his numerous important memoirs to the Royal, the Zoological, and the Ray Societies.

† *Vide* P. Z. S. 1867, p. 419 (footnote). Nitzsch, fully half a century ago, called attention to the *Knochenkapsel* or *Muschelbein* as analogous

Lastly, the hinged beak is perforated by large and wide nasal apertures, which extend well forwards; the lachrymal or tear-bone is nearly perpendicular, its inferior limb spongy; and there is no depending spicule or crotchet bone*, nor any backward upper orbital process.

IV. STRUCTURAL COMPARISONS AND AFFINITIES.

From the great majority of the Passeres (Coracomorphæ of Huxley) *Colius* is trenchantly separated by its possessing two pairs of notches on the sides of the sternum. Neither is its sternal manubrium deeply forked, nor do the pectoral plates correspond in figure &c. to them. Even in *Scytalopus* and *Pteroptochus*, aberrant Passerine genera, with four clefts and xiphoid processes, these and the pectoral surfaces are very different from the Coly type; besides other details, their rostrum is deeply cleft. *Phytotoma*, though classed by some among the Musophagidæ, Blanchard† says has the sternum like those of the Finches.

The wing-bones of *Colius* are relatively shorter and stouter than those of the Finches, Larks, and Orioles it has been associated with. In these latter and the Sparrow-tribe generally, six canals for the flexor tendons perforate the tarso-metatarse; their first toe is strong and turns backwards. The Coly therein differs.

By the non-truncation forwards and want of cleavage behind in the vomer, by the difference in the maxillo-palatines (if I inter-

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to the "antrum Higmori" of the human cheek-bones (Osteographische Beiträge zur Naturgeschichte der Vögel, p. 26).

* See paper by Prof. Reinhardt "Om en hidtil ukjendt knogle i Hovedskallen hos Turakoerne (Musophagides, Sundev.)," Copenhagen, 1871.

† *L. c.* p. 90.

pret these correctly), by the brevity of the orbital limb of the quadrate, and relative diminution of the articular knuckles, it cannot be classed with them. If these reasons apply to one division of the Passeres, it equally holds good with *Phytotoma* and the Orioles.

The Passerine tongue, vocal apparatus, and feathering are sensibly modified in *Colius.*

From the Psittacidæ our genus is as much distinguished—the Parrots having two sternal foramina instead of clefts, and clavicles either absent or disunited and always without hypocleidium. They again excel in the proportion of all the segments of the bones of the wing, but possess a humerus diminished in comparison with the wing's length. In contrast, the Coly far exceeds the Parrots in the proportion of each leg-bone to the femur, but shows inferiority when the entire length of the leg is the standard, save its long tarso-metatarse. In Parrots the outer lower articulation of the latter has two facets, and the fourth toe is permanently turned backwards. The Psittacine inferior mandible differs in several respects. Their lachrymal bone has a long inferior backward limb; they have a single laterally compressed inferior articulo-quadrate facet; their pterygoids are more elongate, their maxillo-palatines more extensive; præmaxillæ greatly curved over lower mandible, and other specialities (pterylosis and inferior laryngeal muscles),—all in contrast to *Colius.*

As to the Musophagidæ (supposed allies of our form in question), their characters break down when compared with *Colius* in detail. Although their sterna have two pairs of notches and processes, yet each of these is relatively short, the latter thick, not pedate, and the middle xiphoid terminally wide and abruptly truncate: the breast-plates are quadriform and deeper; rostrum abbreviate; five, not four, costal facets; furcula narrow above, and without hypocleidium; a supracoracoid foramen, not a simple groove; coracoids relatively shorter and stouter; epicoracoids unusually wide, and, in some cases, overlapping; scapula nearly straight.

One less caudal vertebræ, and the coalesced lumbo-sacrals apparently in excess of *Colius.* The latter has advantage in metacarpo-phalangeal length; an external inferior condyloid tubercle, and an osseous bridge betwixt the metacarpals; in other respects the wing-elements correspond. In leg-proportion of the Coly to the Touraco it resembles the Parrots (as above stated), the metatarsus being greatly in excess. Femoral trochanter and cnemial ridge of tibia large and prominent. The other grooves and articular surfaces agree; but the set and anterior position of the toes are most unlike—the Musophagidæ having fourth and first backwards; in *Colius* they are all forwards.

The pelvis of the Turacoes has the fronts of the ilia united into an arch, and the lumbo-dorsal muscles and tendons pass beneath; the iliac blades expand forwards (as in the Cuckoos); and the proportion of the præacetabular area is longer, the postacetabular area is narrower in proportion to length; the ilio-ischiac junction forms a prominent shelf; and there is great depth of the ischium itself. In all these particulars, therefore, the pelvis is dissimilar to that of the Coly.

An outward resemblance in the skull of the two groups of birds compared is not substantiated by the basal plan of the maxillo-palatal segment and other particulars. Nearly, if not all, of the Plantain-eaters have a development, and sometimes a curious one, of the crotchet bone (infralachrymal). This is absent in the Colies. The Musophagine spongy maxillo-palatines meet in the middle line; their palatal plates are less wide apart, broader fore than aft, and throughout horizontal; cut sharper off posteriorly, and inwardly have not the characteristic valley of *Colius.* Their præmaxillæ possess a high culmen, in some of the genera forming quite a nodosity; nasal orifice small, round, and placed well forwards; beak terminating in a long deflected point, that of *Colius* being shorter, and the nares very large.

Both the tongue and the vocal apparatus of the Touracoes disagree with those of the Coly; and so even do the plumage and coloration to a degree.

The Rollers (*Coracias*), as Vieillot and Blanchard both surmise, exhibit a relationship to our form, but, like the last-mentioned, very considerably modified. Their sterna have quadruple notching; but the shortness and strength of the xiphoids, depth of pectoral plates, occasional want of interclavicle, supracoracoid foramen, &c. define them most trenchantly from *Colius*. Their pelvis, however, has a form approaching nearer to the latter than that of the Musophagidæ. On the other hand, a longer-beaked skull, the cranial vertex high, and præmaxillæ give a totally different contour. There are rudiments of basipterygoids in *Coracias**; the zygomatic spicule reaches the jugal; præmaxillary hinge almost deficient; interorbital septum totally ossified; maxillo-palatine construction more like *Turacus* than *Colius*; mandibular and other points are all significant of separation of cranial character.

The whole of the leg-bones of the Roller are shorter throughout, and especially that important one the tarso-metatarse. This fact even comes out stronger when the homologous pieces of the leg and wing of the genera compared are studied; for *Coracias*, be it observed, has a long ulna.

There are some points in one genus of the Rollers which point to alliance, even if otherwise subdued: I allude to *Colaris*. In this form there is a progressive shortening of the beak, a wider separation of the maxillo-palatines and palatal plates, and, anteriorly, presence of hypocleidium and a short thickish tongue.

One short notch on each side of a massive sternum, a great prow formed from keel, bifid manubrium, absence of interclavicle, &c. distinguish the Bucerotidæ. These have one dorsal vertebra less. Their pelvis is vastly different in shape, proportional length to breadth of præ- and post-acetabular areas, ischial shortening, flattening, and an additional external marginal process evince complete separation. Their skull is quite as singular; and in limb-bones more especially, the shortening of tarsometatarsus, position of toes, and syndactylism offer the reverse of coincidence to the Coly tribe.

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* Huxley states there are none, "Classification of Birds," P. Z. S. 1867, p. 448.

The equally remarkable *Opisthocomus*, although placed in close apposition to *Colius* by Nitzsch on pterylographic grounds, presents remoteness from this form osteologically. The very numerous points of difference I need not dwell upon, but instead refer the reader to Huxley's* terse and graphic description. Even a comparison of the present plate with his woodcuts will suffice.

As regards the fictitious brotherhood of the Colies with the Woodpeckers, possibly from their branch-creeping propensities —their organization is of a most opposite kind. Neither the shape of the skull, its constituent upbuilding, the sternal and shoulder-girdle configuration, the number of the terminal spinal vertebræ, the shape of the pelvis, disposition and length of toes, tarsal proportion, tongue and visceral structure, nor the pterylosis displays conformation which would suggest their being ranked together.

I might extend my comparisons; but I fear I have already drawn them out to an inordinate length. I presume, however, that my evidence will be sufficient to show that *Colius* consistently is not a true Passerine (or Coracomorph)—a verdict already arrived at by ornithologists studying external characters alone. No more do I find from my observations that it is either a true Parrot (Psittacomorph) or an aberrant one, as the shrewd reasoning of Wallace from habits &c. would imply. As little does its organization comport with the Woodpeckers' (*Celeomorphæ*), the Hornbills', or that of the Hoazin (*Opisthocomus*, a Heteromorph). To the Rollers and the Touracoes (Coccygomorphs) undoubtedly there are many structural traits which suggest affinity. But so, on the other hand, might we as well assume it to be a Finch, from the remarkable similarity of the one skull to the other.

The facts are these: if we take one set of regional characters —the feet, the head, the breast-bones, the pelvis, and so on— we can place it in as many different groups; we can even trace Raptorial kin; so that it is hard to say where *Colius* could not be wedged in, and plausibly too. Not only is it entitled to be considered aberrant, but to afford the strongest proof of the interlinking of type—not in the chain-series so often advocated, but, like the Isle of Man tripodal coat-of-arms, kicking its legs about, and whichever alighting upon, there it stands.

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* Chapter III. "On the Affinities of *Opisthocomus*," in his paper in P. Z. S. 1868, p. 304.

But if, in the true spirit of ornithology, we take the bird in its completeness, it will be allowed it does not so closely resemble any acknowledged individual group as to come under its definition.

Without advocating its proper place, I propose equally to exclude it from the old Fissirostral and Scansorial, and the Passerine groups, the recent Coccygomorphæ and Coracomorphæ. It, as I conceive, is equally with the Woodpeckers and Goatsuckers, Celeomorphæ and Cypselomorphæ, annectent betwixt the Coccygomorphæ and Coracomorphæ.

Professor Huxley, in his severely heterodox arrangement (*l. c.*), gave a brief diagnosis of his Coccygomorphæ. With several of its essentials the Coly does not agree, no skeleton having probably been seen by the above writer. With prescience he hints the said groups may hereafter be required to be divided; and in this I acquiesce, the Coliidæ here being the first slice I have removed, the Todiidæ* partly taking its place.

Before adding characteristics of the Coliomorphæ I may curtly allude to genera of the Colies. Apart from synonyms, *Colius*, Briss., *Urocolius*, Bp., *Rhabdocolius*, Bp., and *Hypocolius*, Bp., are admitted by some. Skins and stuffed specimens of the first three of these I have carefully examined. To ornithologists these genera may be good; but I think, if bird-genera are so feebly defined, Heaven help the coming generation of workers!

CHARACTERS OF THE COLIOMORPHÆ.

In these the rostrum is arched, slightly bent at the tip, and with a frontal movable hinge. Nares large; external aperture basal, naked, linear, and oblique. Maxillo-palatines diminutive, wide apart. Palatines are narrow, rod-like in front, and posteriorly expand into large, partially horizontal, truncate plates. Only slight ossification of the nasal septum, with extensive naso-palatine space. Vomer short, acuminate anteriorly, and without cleft posteriorly. No basipterygoid processes. Absence of crochet or infralachrymal bone. Quadrate with a short orbital process; articular knuckles subequal in depth, the inner one laterally compressed and obliquely set. Mandibular rami delicate, deep; a large dentary space; internal angular process well developed; a pronounced postinferior angle. Sternum 4-notched; xiphoids very long and slender. Keel and pectoral plates shallow, the latter occasionally denticulate. Four rib-facets. Rostrum indented, but not deeply cleft. A large interclavicle present; and præcoracoid moderately wide. Pelvic postacetabular area wide and square; præacetabular without special median contraction; the iliac margins do not form spinal bridges. Ilio-ischial junction without special outward shelving; ischial tuberosity lengthened. Tarso-metatarse long, the calcaneal process pierced by one foramen. All four toes turned forwards, and furnished with acute slender claws. Tongue flat, cartilaginous, with horny papillæ. A simple inferior laryngeal muscle. Stems of the inferior feather tract sparse, dilated on all sides, and no diverging outer branch.

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* Paper lately read by me before the Zoological Society, May 1872.

DESCRIPTION OF PLATE X.

The skeleton, minus the ribs and some of the vertebræ, of the Bejook *Colius* (*Rhabdocolius*, Bp.) *leucotis*, Rüpp. The bones are drawn as nearly as possible of their natural dimensions, excepting figs. 7, 8, 26, and 27, which are enlarged to double their size.

Fig. 1. Upper cranial surface.
Fig. 2. The lower surface of the skull.
Fig. 3. Profile of the cranium.
Fig. 4. The lower jaw or mandible in side view.
Fig. 5. Upper or oral surface of the same.
Fig. 6. Occipital surface of skull without the mandible.
Fig. 7. The quadrate or articular bone on its outside and anterior aspect.
Fig. 8. The same bone of the right side, from below. Each twice nat. size.

The following lettering applies throughout to the corresponding parts of the skull in the above figures:—

pmx, præmaxilla; *n*, nasal; *l*, lachrymal; *p*, palatine; *mxp*, maxillo-palatine; *vo*, vomer? ; *po*, postfrontal process; *z*, zygomatic process; *pt*, pterygoid; *ju*, jugal; *q*, quadrate; *f m*, foramen magnum; *i a*, internal angle; *a*, angle of mandible; *d s*, dentary space; *o l*, orbital limb; and *i k*, internal knuckle of the quadrate.

Fig. 9. The rump-bones and tail, or pelvis and caudal vertebræ, shown laterally.
Fig. 10. Interior view of the same parts.
Fig. 11. Upper or dorsal surface of the same.

Points in the anatomy of the pelvis &c. are specified as subjoined:—

il, *il**, ilium, its anterior and posterior divisions; *is*, ischium; *t*, tuberosity; *sp*, spine of same; *p*, os pubis; *a*, acetabulum; *f*, facet; *o*, obturator notch or foramen; *if*, ischiatic or thyroid foramen; *sa*, coalesced sacral vertebræ; *cd*, caudal vertebræ; *py*, pygostyle; dotted line indicates its natural position.

Fig. 12. A side view of the sternum and shoulder-girdle.
Fig. 13. The inferior pectoral surface of the same.

The parts lettered in these two figures are:—

k, keel; *r*, rostrum; *m x*, middle xiphoid; *i x*, internal, and *e x*, external xiphoid process, the spaces corresponding; *c p*, costal process; *co*, coracoid; *ep*, epicoracoid; *f*, furcula; *hy*, hypocleidium; *sc*, scapula; *g*, glenoideum or articular facet.

Fig. 14. Left upper wing-bone or humerus, seen from behind.
Fig. 15. Its superior end (shoulder-joint).
Fig. 16. Its lower end (elbow-joint).
Fig. 17. The remainder of the wing-bones.
Fig. 18. Upper radio-ulnar articulation.

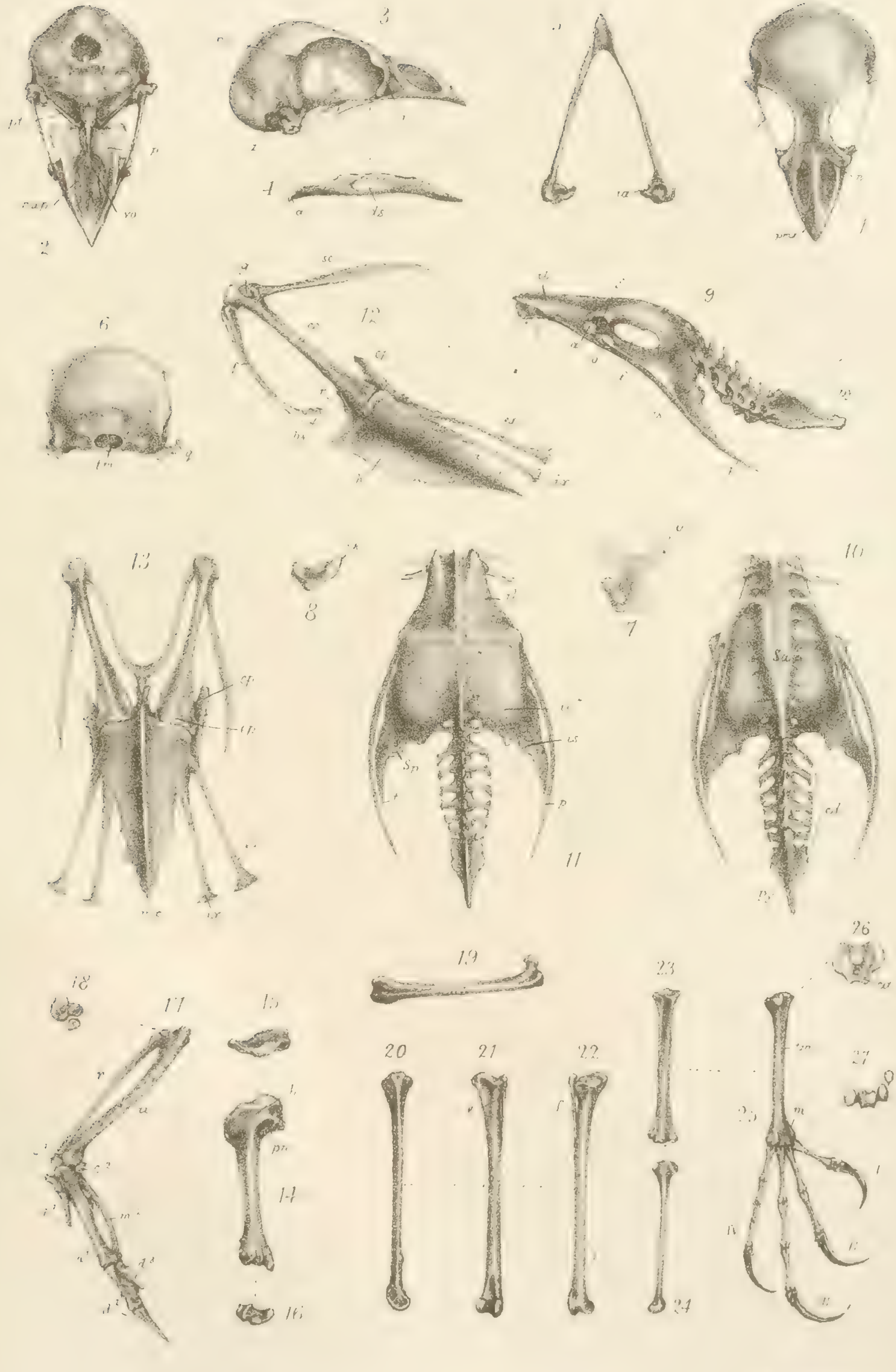
Letters have the undermentioned signification:—

h, head of humerus; *pn*, pneumatic foramen; *u*, ulna; *r*, radius; c^1 and c^2, first and second carpal bones; m^1 and m^2, first and second metacarpals; d^1, d^2, and d^3, digits, first, second, and third, respectively.

Fig. 19. Thigh-bone of the right side, front view.
Fig. 20. The left tibia in profile, outside view.
Fig. 21. Tibia and fibula, anterior aspect.
Fig. 22. Posterior aspect of the same.
Fig. 23. Posterior surface of the left tarso-metatarse.
Fig. 24. Profile of the same, seen from without.
Fig. 25. The left tarsus and foot, seen from behind.
Fig. 26. Upper articular surface of the tarso-metatarse.
Fig. 27. Lower articular end of the same. This and preceding enlarged to about double their natural dimensions.

The lettering runs:—

t, tibia; *f*, fibula; *e*, bony eminence or tuberosity; *tm*, tarso-metatarse; *m*, metatarsal piece; I, II, III, IV, digits; *ca*, calcaneal tuberosity or "hypotarsus."



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C. Berjeau lith.

XXXIII.—*Two Months' Bird-collecting on the Gold Coast.*

By Captain G. E. Shelley and T. E. Buckley.

We left England on the 12th of January, 1872, to study the rich and, as yet, very imperfectly known avifauna of the Gold Coast.

After a rough passage, we anchored in the beautiful bay of Funchal, the capital of Madeira. The town itself is prettily situated at the foot of the hills (of rugged and bold outline), which are terraced with vines &c. almost to their summits. Behind the town, halfway up the mountains, stands a convent, one of the most conspicuous objects on entering the harbour.

As yet we had seen but few birds; for Gulls were not very abundant, the two commonest species being the yellow-legged Herring-Gull and the Kittiwake. Near the Canary Islands sea-birds were more numerous; and we saw quantities of two species of Shearwater, one of which appeared to be *P. anglorum*. Between Teneriffe and Sierra Leone we frequently met with Petrels, probably the two species *P. pelagica* and *P. oceanica*, both of which appear to be equally abundant on the west coast of Africa.

While within fifty miles of Teneriffe a Hoopoe came on board, and some hundred and fifty miles further south we shot a specimen of *Lanius algeriensis* which had alighted on the rigging. As the weather was fine and the sea calm after passing the Canaries, we were often on the look-out; and though we saw but little of interest ornithologically, yet whales, porpoises, and innumerable nautili relieved somewhat the monotony of our sea voyage.

On approaching the pretty harbour of Sierra Leone we first sight Africa. Freetown, its capital, is situated at the mouth of a broad river, and is a thriving place; in the background the hills rise abruptly over the town, and are densely wooded; while the low ground and the opposite side of the river, which is likewise flat, are covered with thick bush, with here and there occasional large trees.

In the harbour we saw many Gulls and some Terns; among the latter we recognized *S. bergii*, *S. cantiaca*, and *S. leucopareia*; these we met with abundantly throughout our tour when near any lagoons. Of land birds we saw but two species, *Budytes flava* and *Passer simplex*, both very common throughout the Gold Coast.

After leaving Sierra Leone we kept the land in sight nearly the whole way; but the scenery was most uninteresting; it consisted of one continuous flat densely wooded country, the outline scarcely broken except by the rocky promontary of Cape Palmas, a pretty little spot belonging to the Americans. Here we waited for an hour to land the mails, and took the opportunity of visiting the missionary station, which is very creditably conducted, though the lighthouse attached to the establishment is lamentably deficient in light.

At length, on the 29th of January, we landed at Cape-Coast Castle. The most prominent object is the castle itself; a large white building, washed on one side by the sea; it was built for holding slaves in former days, but is now used as barracks. Behind the castle, and near the centre of the town, stands Government House, and most of the larger buildings, all whitewashed; the native dwellings are square mud huts, with flat roofs, but much more comfortable and better built than we expected to find them. Altogether the town has a picturesque appearance; the palm trees here and there break the outline of the square-built houses; while the immediate neighbourhood of the town, unlike the general coast-line, is surrounded by small hills, on which are situated a lighthouse, powder-magazine, and a look-out.

The country is covered with low, dense bush, interlaced with creepers, which form an impenetrable network, so that we were almost entirely confined to the narrow paths, two of which aspire to the name of roads—one the Ashantee road, running inland to the north-east, by the foot of Connor's Hill; the other, leaving the town westward, leads to Denkera, by way of Abrobonko and Bula.

The climate is too well known and justly abused to require any comments from us, though we were neither of us laid up with fever during our short stay in the country, which was probably owing to the precautions we took and the hospitality shown us by the many friends we found out there, which obviated the necessity of our having to "rough it." We cannot pass over the kindnesses we received while on our travels, and the assistance which was always so heartily given us, without offering our warmest thanks to the friends we met with at Cape-Coast Castle and Accra.

The year out here may be divided into two seasons—the summer or wet season, and the winter or dry season: the first is the most dangerous, on account of fevers, though the best time for collecting; while the latter, at which period we were out, is, towards its close, the worst for dysentery; and on long excursions the want of good water is a serious drawback. The wet season is ushered in by tornadoes; and, owing to their being rather earlier than usual, we had several during our stay at Cape Coast. These storms, though of short duration, are very heavy, and are accompanied by a downpour of rain such as is rarely seen in more northern climes, while the lightning is incessant. At other times the nights are damp, and the days close and muggy, which causes the least exertion to be felt. The sun's rays are very powerful; and the risks of over-fatigue or taking a chill were so frequently brought before our notice, that we were rarely out of doors after ten in the morning or before three in the afternoon.

No assistance can be obtained from beasts of burden; for they cannot live in these bushy parts of the west coast, owing to the "Tsetzi Fly," while at Accra, seventy miles to the east, where the country is more open, there are a few horses—though they cannot be taken far inland even here, on account of this pest. At Cape Coast there are a few light carriages, drawn by natives; but the usual mode of progression is in a hammock.

On the 30th of January we started at 5 A.M. in a carriage drawn by six men, for Abrobonko. The road leads out of the town by an avenue of cocoa-nut palms, then turns off by the side of the Salt Pond, and is soon enclosed on each side by dense bush. On reaching Abrobonko (a small village of square mud huts thickly thatched with grass) we met with the first large trees we had seen in Fantee; some of these are at least

150 feet high, and are generally without a bough to within some 50 feet of the top. These large trees are the resort of a few birds of prey, chiefly *Buteo desertorum*, *Milvus ægyptius*, and *Neophron pileatus*. This latter species, though extremely abundant at Cape Coast, is never met with at Accra; and where it breeds is not yet known, although it is numerous all the year round at Cape-Coast Castle.

Small birds are plentiful at Abrobonko, and wonderfully varied; but on this occasion our special object was to collect the Sunbirds, which were abundant round the tulip-trees, attracted thither by their large red flowers. These trees, however, were not particularly picturesque; for though covered with flowers, they were entirely devoid of leaves. In half an hour we had collected some twenty specimens of Nectariniidæ belonging to seven species. The habits of all the Nectariniidæ are very similar: they seek their food (which consists of small insects) among the flowering trees and shrubs, and are lively and active in their pursuit, and appear to glory in the sunshine; for they rarely hide themselves in the shady bushes.

At Cape-Coast Castle, Connor's Hill, within ten minutes' walk of Government House, we found a very good spot for collecting, especially in the morning, after rain; and here we obtained most of the European forms, as *Phyllopneuste trochilus*, *P. sibilatrix*, &c. Fort William, on the opposite side of the town, was particularly good for collecting Swifts and Swallows, while the Lighthouse Hill is the only spot where *Chætura ussheri* has yet been obtained. The avenue of cocoa-nut palms along the road to the Salt Pond was, in the morning, a great attraction for the Nectariniidæ, while the Salt Pond itself abounds with Waders and Terns. The Abrobonko road beyond this was, perhaps, one of the best grounds for general collecting, as here and there spaces had been cleared in the bush.

On February the 5th we left Cape-Coast Castle, on board the Government steam-yacht, for Accra, intending to ascend the Volta in her; but our plans were frustrated by her boilers getting out of order.

The country round Accra is much more open than at Cape Coast, the plain being covered with high grass and scattered bushes, together with innumerable red-clay hills of the white ants.

On the 11th we made up a party to go to Quamin-fio, some ten miles inland, where we remained two days; here we collected several good birds, among others *Caprimulgus longipennis, Hirundo senegalensis, Nilaus brubru,* and *Œdicnemus senegalensis.* Had we devoted our time entirely to sport, we might here have made a very fair bag of antelopes and Francolins.

To the west of Accra, beyond the Salt Pond, the country is also good for antelopes, especially the harness-back; and here we also found three species of Francolins plentiful.

On the 18th we started for Abouri, in the Agua-pim district. After travelling about eight miles, the country became densely bushed, so that we had to keep entirely to the path. Towards the outskirts of the plain of Accra we passed a small spring; and here birds were extremely numerous and varied. We put up for the night at Abokobi, with the German missionaries; and as it was late when we arrived, the glow of innumerable fire-flies lighted up the ground. We remained here the following day; but the bush was so dense that we could obtain but few birds; so we devoted some of our attention to the butterflies, which were so abundant that we collected nearly fifty species in one morning.

On the morning of the 20th we left Abokobi; and after two hours' tedious journey along a level, narrow path, we came into much finer scenery as we ascended the hills of the Agua-pim range, and finally arrived at Abouri about mid-day, where we again put up with the German missionaries, who were most hospitable, and rendered us every assistance they could in collecting.

Having now concluded our journal, it may be thought not out of place for us here to make a few remarks from our personal notes upon the distribution and habits of some of the birds which have already been recorded from the Gold Coast, while we shall keep in a separate list, at the end, all the species we obtained which have not hitherto been mentioned by Mr. Sharpe in his numerous papers in this Journal on the birds of Fantee.

Scotornis climacurus is very abundant throughout the district;

during the day they crouch close to the stems of the bushes, and are very hard to detect or disturb, while towards dusk they frequent the paths, rising close before one from the bare ground, and alighting again a few paces distant.

Cypselus apus, *C. affinis*, and *C. parvus* are very abundant, the latter species frequenting the palm trees, in the folded-up leaves of which it was breeding in February, always in colonies.

We obtained three species of *Merops*. *Merops albicollis* is extremely abundant and evenly distributed throughout the country, while *M. pusillus* is confined to the more open districts, where it frequents the low bushes; it was always in pairs in February.

Eurystomus afer is plentiful at a short distance inland from Accra, but has not been met with, to my knowledge, near Cape-Coast Castle, where its place appears to be taken up by the nearly allied species *E. gularis*.

Ceryle rudis we observed hovering over the Salt Pond at Cape Coast. *Ispidina picta* we obtained at Abrobonko and at the foot of Connor's Hill. *Halcyon malimbica* and *H. cyanoleuca* we met with at Abrobonko.

Buceros albocristatus we found very abundant about Abouri, where it frequents the highest trees, and on the wing looks very graceful as it floats easily through the air. At Quamin-fio we obtained a pair of *Toccus nasutus*, which were feeding in the cassava-fields when we saw them: their irides are red, while those of the former species are dark brown.

Corythaix macrorhyncha frequents the thick bush; it has a peculiar loud jarring song. *Schizorhis africana* is plentiful near Accra, where it may generally be seen perched upon the very topmost bough of some large tree in the more open country, and is very difficult to approach. The irides are dark brown.

Coccystes glandarius we killed near Accra. *C. caffer* is not uncommon throughout the district. The beautiful Golden Cuckoo, *Chrysococcyx cupreus*, we shot on Connor's Hill. *Centropus senegalensis* is extremely abundant throughout the west coast. Its song is rather pleasing, consisting of a regular scale of notes, commencing with the highest one. The irides are red.

We only met with Barbets in the dense forests of the Aguapim district, where we killed *Tricholæma hirsuta, Xylobucco duchaillui, X. scolopacea, X. subsulphurea,* and *Gymnobucco calvus.*

Of the Picidæ we obtained three species, mostly near Abouri, where *Campethera gabonensis* is not uncommon.

We shot several examples of the genus *Criniger,* one new to the Gold Coast. In habits they rather closely resemble *Campephaga,* and frequent the dense forest, where their dull colours render them very hard to observe.

We never passed a day without seeing *Pycnonotus barbatus,* which we met with breeding at Abouri in February. *Crateropus reinwardti* was not uncommon near Accra, where we found it singly or in pairs. The irides are white.

Cossypha verticalis is tolerably abundant throughout the district; it usually frequents the thick detached bushes, rarely showing itself in the open. When driven out of one bush it flies close along the ground to the nearest covert. The irides are brown. *C. cyanocampta,* a much rarer species, we obtained both at Abouri and Cape Coast.

Pratincola rubetra is extremely common throughout the district.

Of *Drymœcæ,* the following are very evenly distributed throughout the more open country—*D. nævia, D. fortirostris, D. brachyptera, D. melanorhyncha, D. schwarzi, D. erythroptera,* and *Cisticola schœnicola*; while such Warblers as *Stiphrornis badiceps, S. prasina, S. erythrothorax, Eremomela pusilla, Camaroptera concolor,* and *C. brevicaudata* we only met with in the more densely wooded districts of Abrobonko and Agua-pim.

Of the Nectariniidæ, so well represented in these parts, we obtained the following, *N. verticalis, N. cyanocephala, N. adelberti, N. chloropygia,* and *N. obscura,* plentiful in the wooded districts—*N. superba* and *N. johannæ* only at Abouri. *N. cuprea,* a very abundant species, frequents the more open country, while *N. splendida* was equally abundant everywhere.

Butalis grisola, B. epulata, and *B. comitata* are not uncommon; the latter two, however, are more confined to the wooded parts. *Elminia longicauda* we met with on Connor's Hill, where we saw a pair. *Bias musicus* we shot at Abouri. *Platystira melanoptera* is plentiful at Cape Coast: on the approach of danger it hops leisurely into the denser part of the bush.

Psalidoprocne holomelæna is very plentiful throughout the country, especially in the more wooded districts, where during the heat of the day flocks may be seen sitting together on the more shaded dead boughs of the large trees, and may frequently be met with after the sun has set, still in pursuit of insects. *Hirundo rustica* is very abundant in February. We only occasionally met with *H. leucosoma*. *H. senegalensis* we found near Accra, especially at Quamin-fio; they were paired in February, and probably breeding in the large hollow trees, the topmost boughs of which they usually frequented. *H. gordoni* is plentiful throughout the district, and generally met with in pairs perched on the top of some low bush or on the coarse grass of the plains. *H. puella* is also abundant everywhere.

Dryoscopus major frequents the dense bush, which resounds with its soft silvery notes, as pairs keep answering each other at short intervals. *Laniarius barbarus,* alike conspicuous for its pleasing notes and bright-red breast, is extremely abundant throughout the district. *L. sulphureipectus* is more sparingly distributed, and is difficult to drive out of the bush; its notes are rough and not musical. *Nicator chloris* frequents the more densely wooded districts; and we only met with a few specimens at Abouri and Abrobonko. *Sigmodus caniceps* we obtained on Connor's Hill. *Lanius smithi* is constantly to be seen on the topmost bough of some bush or on a mound of the white ants. *Corvinella corvina* is not uncommon: in habits it closely resembles true *Lanius,* from which it appears rather improperly separated. *Telephonus erythropterus* is very abundant, especially amongst the more detached bushes: they have a peculiar way of rising in the air, like our Sky-Lark, when the flapping of their wings may be very audibly heard. *T. minutus* is apparently rather rare; for we only once met with it at Cape-Coast Castle.

At Abouri we obtained one specimen of *Campephaga quiscalina*. *C. phœnicea* is also met with at Abouri: they are both forest-birds.

In the same locality we found *Oriolus brachyrhynchus* and *O. nigripennis* plentiful, and occasionally shot them both out of the same tree.

Pholidauges leucogaster we saw near Accra, where they were in flocks; and in similar localities found *Lamprocolius auratus.* These handsome birds are strong on the wing and generally to be met with in flocks in the open country. Their irides are yellow.

Corvus scapulatus closely resembles the Hooded Crow in its habits, and is plentifully distributed throughout the country.

Hyphantornis castaneofuscus generally frequents the more wooded districts, where it is very common : the irides are yellow in the males and brown in the females and young. *H. textor* is even more common: it selects some tree of moderate height close to a village for breeding, which it literally covers with pendent nests. *H. vitellina,* a nearly allied species, is far less abundant, though rather evenly distributed. *H. brachypterus* we met with usually in pairs. *H. personatus,* known as the Palm-bird, suspends its nest from beneath the leaves of the cocoa-nut trees, as many as four or five sometimes hanging from one frond. All these species of *Hyphantornithes* differ in the plumage of the sexes. *Malimbus cristatus* and *M. nitens* we obtained at Abouri, where they were plentiful, frequenting the large trees. *Nigrita emiliæ* and *N. bicolor* also inhabit the more wooded districts, where they are not uncommon. The irides of both species are red. *Foudia erythrops, Euplectes franciscana,* and *E. flammiceps* are common, usually in flocks, in the more open districts. The red plumage of the two latter species is assumed about April. *Vidua principalis* we found plentiful on the road to Abrobonko. In the dry season the long tail-feathers, so characteristic of this species, are absent, and the general plumage is mottled brown and black. *Coliostruthus macrurus* frequents the more open country about Accra. The winter plumage is mottled brown and black; and in some of the specimens we shot the yellow patch on the carpal joint is absent, the birds being probably immature.

Spermestes bicolor we only met rather sparingly at Abouri, while *S. cucullata* was very common at Cape Coast. *Lagonosticta rufo-picta,* is extremely abundant about Cape Coast, where they are generally met with in small flocks, frequenting the paths and adjacent bushes.

Pytelia hypogrammica. We shot a specimen of this rare bird at Abokobi, in the dense bush.

Estrelda melpoda is abundant, usually met with in small flocks on the roads about Cape Coast.

Crithagra chrysopyga is a very common species and usually in large flocks. *Spermospiza hæmatina* is not very abundant, and, as it keeps very much to the thick bush, is difficult to procure. *Passer simplex* resembles our House-Sparrow in all its habits, and is extremely common.

Anthus gouldi and *Macronyx closeus* are abundant on the plains of Accra, while *Budytes flava* is common everywhere.

Milvus ægyptius is common throughout the country, and often met with at sea, preying probably upon dead fish, which we observed them devour while on the wing, like a Gull.

Elanus melanopterus we once observed at Accra, and at the same locality killed *Scops senegalensis* on the 28th of February, when we found its nest containing three eggs.

Treron calva, Turtur senegalensis, T. semitorquatus, T. erythrophrys, and *Peristera afra* we met with plentifully throughout the country.

Francolinus bicalcaratus is sufficiently common about Accra to afford fair sport. *Turnix lepurana* is also very abundant on the plains.

Eupodotis melanogastra we often saw near Accra, where they are not shy.

Ægialitis intermedia and *Æ. marginata* are common at the Salt Ponds both of Accra and Cape Coast.

Ardea schistacea is plentiful at Accra.

Numenius arcuatus, N. phæopus, and *Totanus calidris* we saw on several occasions.

The following list is intended to form a suite to Mr. R. B. Sharpe's papers in 'The Ibis' "On the Birds of Fantee," and are numbered accordingly. A dagger (†) is appended to the names of such species as we believe to be hitherto unrecorded from Fantee.

†272. CAPRIMULGUS FULVIVENTRIS, Hartl.

We shot two specimens of this rare Goatsucker at Quamin-fio, near Accra, on the 11th of February.

†273. CYPSELUS APUS (L.).

Abundant throughout the country.

†274. Merops malimbicus, Shaw.

Met with in considerable numbers at Abouri about the middle of February.

†275. Tockus nasutus (L.).

†276. Criniger serinus, Verr.

We shot a specimen of this bird at Abouri on the 19th of February.

†277. Crateropus platycercus, Sw.

Frequently met with near Accra, and always in parties of ten or twelve. They keep up an incessant chatter, their notes somewhat resembling that of the common Fieldfare.

†278. Drymœca fortirostris, Jard.

Very abundant and evenly distributed throughout the country.

†279. Camaroptera concolor, Hartl.

We shot a specimen at Abouri in February.

†280. Hypolais salicarius, Retz.

We obtained a specimen of this Warbler at Abouri in February.

†281. Phyllopneuste sibilatrix (Bechst.).

Plentiful throughout the country in February; shot on Connor's Hill and at Abouri.

†282. Phyllopneuste trochilus (L.).

Plentiful, and met with in similar localities as the last species.

†283. Daulias luscinia (L.).

The Nightingale is plentiful throughout the country in February. We collected specimens from Cape-Coast Castle and Abokobi.

†284. Sylvia hortensis, Gm.

We shot one specimen at Abouri on the 22nd of February.

†285. Sylvia cinerea, Bp.

We shot one specimen at Accra on the 8th of February. Neither this, nor the Nightingale, nor the last species has ever, I believe, been hitherto recorded from any part of West Africa.

†286. MEGABIAS FLAMMULATUS, Verr.

We shot three specimens of this rare Flycatcher at Abouri in the middle of February. Irides red, tarsi and feet pink.

†287. NILAUS BRUBRU (Lath.).

We shot one specimen at Quamin-fio from the top of a high tree in the more open country. Irides brown, legs and base of the lower mandible pale slate-grey.

288. LANIUS AURICULATUS, Müll.

Not uncommon throughout the country. We obtained three specimens.

†289. HYPHANTORNIS TRICOLOR, Hartl.

We killed three specimens at Abouri in the middle of February. This is a very rare species in collections, but appears not to be uncommon in the Agua-pim district.

†290. BUDYTES FLAVA (L.).

This is an extremely abundant species throughout West Africa.

291. NEOPHRON PILEATUS, Burch.

Abundant at Cape Coast, where they are never molested, but not met with at Accra.

†292. BUTEO DESERTORUM, Daud.

Plentiful in the more wooded districts, where they frequent the high trees.

293. CIRCUS PALLIDUS, Sykes.

Common at Accra, and also met with at Cape-Coast Castle.

†294. PTILOPACHUS VENTRALIS (Valenc.).

Very plentiful near Accra, where we met with it always in pairs in February. Naked patch round the eyes, legs, and basal half of the beak vermilion; end of the beak bluish pink; irides hazel.

†295. COTURNIX COMMUNIS, Bonn.

We shot one specimen near Accra, but did not preserve the skin.

†296. ŒDICNEMUS SENEGALENSIS, Sw.

We shot a specimen of this Thick-knee on our way from Quamin-fio to Accra on the 13th of February.

†297. Ægialitis minor, Mey.

298. Ægialitis pecuaria, Kittl.

These two species are abundant near Accra and Cape-Coast Castle.

†299. Ægialitis tricollaris, Vieill.

We shot one specimen near the Salt Pond at Cape Coast on the 8th of February. The legs and eyelids are pink.

300. Totanus stagnatilis, Bechst.

†301. Totanus ochropus (L.).

†302. Totanus glareola (L.).

303. Totanus canescens (Gm.).

All these four species of Sandpipers are plentiful on the Salt Ponds of Accra and Cape Coast.

304. Himantopus candidus, Bonn.

We saw a pair on the Salt Pond at Accra. It has since been sent home by Mr. J. Smith, of Accra.

305. Tringa minuta, Leisl.

Plentiful on the Salt Pond at Cape Coast.

†306. Podiceps minor, L.

Very abundant on the Salt Pond at Accra.

†307. Sterna cantiaca, Gm.

We collected several specimens of this Tern both at Accra and Cape-Coast Castle.

†308. Sterna bergi, Licht.

This is the commonest Tern at Accra and Cape-Coast Castle.

XXXIV.—*Description of a supposed new Species of Humming Bird of the Genus* Eriocnemis. By D. G. Elliot, F.L.S., F.Z.S., &c.

There has lately come into my possession a Humming Bird, from an unknown locality, belonging to the genus *Eriocnemis*, which, in the peculiar coloration of its plumage, differs remarkably from any of the known species composing this well-marked group of the Trochilidæ.

Four specimens, precisely alike, were, as I was informed, contained in the small collection of birds from which my example was taken; and, although no locality was given, it is supposed that Ecuador is the habitat of the species. I propose to call it, from its sombre plumage,

ERIOCNEMIS DYSELIUS.

Head, and entire upper parts, black, with a purplish gloss; upper tail-coverts having a very dark greenish gloss; throat and underparts black, but not of so deep a shade as the upper parts, purplish on the abdomen; wings purplish black; tarsi thickly covered with pure white downy feathers; under tail-coverts purplish black; tail rather deeply forked, steel-blue, with purple reflections; the bill is perfectly straight and rather slender.

Total length 4 inches, wings $2\frac{1}{4}$, tail $1\frac{1}{2}$, bill $\frac{3}{4}$.

Among the many groups that comprise the great family of the Trochilidæ, there are few more strongly characterized than that of *Eriocnemis*, from the fact that all its members are possessed of very conspicuous tufts of various colours, viz. white, black, brown, or brown and white, which cover the tarsi, and from which the species have obtained the trivial name of Puff-leg.

Thirteen species have been described; and Mr. Gould, in his beautiful monograph of this family, has divided them into six sections according to their plumage. In this arrangement the present species would take its place among the sombre members of the genus, and would be found with *E. lugens*, *E. squamata*, and *E. aureliæ*.

The species known as *E. isaacsoni* has usually been considered a member of this genus, and has been placed, by Mr. Gould and others, close to *E. luciani* and *E. mosquera*. The great rarity of this bird has prevented ornithologists from becoming well acquainted with it. I only know of two examples—one in the Derby Museum at Liverpool, and the other in my own collection. After a very careful examination of the bird, and comparison with those heretofore considered its allies, I have come to the conclusion that it is much nearer the members of the genus *Helianthea* than it is to those of *Eriocnemis*. In the first place, it does not possess the puffs upon the legs, which all the species of *Eriocnemis* have to an eminent degree; and this of itself is sufficient to remove it from the genus; and, again, it differs in exhibiting a certain amount of brilliancy upon the forehead, as is customary with the species of *Helianthea.*

Omitting *E. isaacsoni* therefore from the list, the genus *Eriocnemis,* including the species here described, contains fourteen members, which may be enumerated as follows:—

1. *Eriocnemis cupreiventris.*
Hab. New Granada.

2. *Eriocnemis luciani.*
Hab. Ecuador.

3. *Eriocnemis mosquera.*
Hab. New Granada.

4. *Eriocnemis vestita.*
Hab. New Granada.

5. *Eriocnemis nigrivestis.*
Hab. Ecuador.

6. *Eriocnemis smaragdinipectus.*
Hab. Ecuador.

7. *Eriocnemis godini.*
Hab. Ecuador.

8. *Eriocnemis d'orbignyi.*
Hab. Peru; perhaps Bolivia.

9. *Eriocnemis derbiana.*
Hab. Volcano of Puraci, New Granada.

10. *Eriocnemis alinæ.*
Hab. New Granada.

11. *Eriocnemis lugens.*
Hab. West side of Pichincha, Ecuador.

12. *Eriocnemis squamata.*
Hab. Ecuador.

13. *Eriocnemis aureliæ.*
Hab. New Granada; Ecuador.

14. *Eriocnemis dyselius.*
Hab. Ecuador?

XXXV.—*On a new Sylviad from Palestine.*

By H. B. Tristram, LL.D., F.R.S., &c.

The recent expedition for the exploration of Moab was too limited in time to afford much opportunity for ornithological investigation; nor could it be expected that any novelties would occur on a highland plateau only separated by a fissure of 20 or 30 miles from the hill-country of Judæa.

A few birds not noticed in previous expeditions were obtained, as *Budytes flavus* (L.), *Querquedula circia* (L.), and a hybrid between *Anas boschas* and *Dafila acuta*.

All the new or peculiar species obtained in the Dead-Sea basin during my last expedition were obtained or noted again, with the exception of *Caprimulgus tamaricis*, mihi.

When searching among the trees and shrubs at Engedi, where birds are generally plentiful, I noticed consorting with the Black-headed Warbler (*Sylvia melanocephala*) a pair of another species; and after a long pursuit I succeeded in obtaining both male and female. My attention was at first directed to them by the note, which differs most markedly from that of *S. melanocephala*.

The bird, in the hand, may at once be distinguished by the irides, which are bright yellow instead of red, the throat and breast, which are black instead of white, and the abdomen, which is cinereous, as dark as the back, without any white. The primaries are deep black instead of rusty brown; and the secondary wing-coverts are black, with a narrow white margin on the outer webs.

The female has the throat black, mottled with white, and the irides yellow as in the male. In the rest of its coloration it resembles the female of *S. melanocephala*.

I propose for this well-marked species the name

Sylvia melanothorax, n. sp.

S. melanocephalæ partibus superioribus simillima, at paullo inferior staturâ. Suprà cinerea, pileo nigerrimo: subtùs thorace et pectore nigris: abdomine cinereo: remigibus nigris, secundariis in parte externâ albo limbatis, iridibus lætissime flavis: long. tot. 4·8, alar. 2·4, caud. 2·3, tarsi ·57, rostr. a rictu ·55 poll.

Fem. mari pectore et gutture similis, aliter ♀ *S. melanocephalæ* similis est iridibus flavissimis.

Hab. in valle Jordani in hyeme.

XXXVI.—*Supplementary Notes to 'The Birds of India.'* By T. C. JERDON, F.L.S., F.Z.S., Retired Deputy Inspector-General of Hospitals, Madras*.

[Continued from p. 139.]

373. PARADOXORNIS FLAVIROSTRIS.

I have recently found this curious bird rather common in Assam and Sylhet, frequenting reeds and long grass in preference to tree-jungle. It is generally in pairs, and has a very pleasing whistling call. It feeds chiefly on insects; and I have had it alive, caught by a very ingenious snare baited with a winged white ant, which the goldsmiths of Assam use to catch birds for their own food. One measured in the flesh 8½ inches long, extent 10, wing 3½, tail 4, tarsus 1¼, foot nearly 1⅞. Bill gamboge-yellow; feet plumbeous green.

374. PARADOXORNIS GULARIS.

This species was obtained by Major Godwin-Austen in North Cachar. Legs slaty green.

376. HETEROMORPHA UNICOLOR.

Beavan states that he saw a small party of this bird hopping about low shrubs and dwarf bamboos near the ground on Mount Tongloo. I recently observed it myself in the same locality, whence, indeed, I formerly had it through shikarees.

377. CHLEUASICUS RUFICEPS.

This is *Paradoxornis sphenura* of Hodgson, MS.

378. SUTHORA NIPALENSIS, Gould, B. Asia, pt. iv. pl. 9 (the upper figure).

The flanks are bright rusty, and the thigh-coverts fulvous; bill dusky livid, pale at the base of the lower mandible. Extent of wing 6 inches, wing 2.

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* [Dr. Jerdon gave us the MS. of this portion of his notes when prostrated with the attack of illness which ultimately proved fatal. In some respects it was incomplete; but the omissions have been supplied by Lord Walden, to whom we submitted the MS. and the proof.—ED.]

379. Suthora poliotis.

The reference to Gould should be pt. iv. pl. 9, lower figure.

380. Suthora fulvifrons.

Gould, B. Asia, pt. iv. pl. 10.

382. Grammatoptila striata.

This species extends westward as far as Kumaon, Mussoorie, and the Sutlej valley. I saw it up to 10,000 feet in Kumaon; and Stoliczka states that near Simla he only got it in the winter. Extent of wing of one 17¼, wing 5¾, tarsus 1¾, foot 2¼. According to Hodgson's drawings it builds a compact Jay-like nest, and the eggs are spotless blue.

385. Pyctorhis sinensis.

Layard wrote to Blyth informing him that he had a second species allied to this, but much larger.

386. Pyctorhis longirostris.

Blyth states of this bird :—"An interesting species, allied to *Acanthoptila*, but the feathers not spiny, and with a tendency to *Chatarrhœa*." He suggests that it is the *Megalurus verreauxi*, Tytler (not described); but that is my *Graminicola bengalensis*, q. v.

387. Trichostoma abbotti.

Blyth states that this species differs but little from Horsfield's *Brachypteryx sepiaria*, and that *Trichostoma umbratile* (Müller) also approaches it very closely. These two species, with *T. rostratum*, form one group, whilst *T. magnirostris*, *T. bicolor*, and *T. cantori* form another.

388. Alcippe nipalensis.

I omitted to notice a white ring round the eye in this bird. One measured in the flesh was 5¾ inches in length, extent 7¼, wing 2⅜, tail 2½, tarsus ⅞, foot 1⅛. The nest is figured by Hodgson deeply formed, the eggs reddish white spotted with deep ferruginous.

389. Alcippe poiocephala.

A supposed new species (*Alcippe brucei*) from the Mahableshwar hills, has been separated from this bird by Fairbank; but

Hume (Journ. As. Soc. Beng. 1870, p. 122) refuses to allow its distinctness.

392. STACHYRIS PYRRHOPS, Gould, B. Asia, pt. xv. pl. 9.

I give a more correct description than I was enabled to do in 'The Birds of India.' Colour greenish olive, somewhat brighter on the head and occasionally with a pale rufous tinge; below light cinnamon or rufescent, paler on the ear-coverts, lower abdomen, and vent; lores black, as also a small patch on the chin; wings and tail olive-brown, the central feathers of the latter faintly barred; bill bluish horny, with a tinge of pink; legs fleshy yellow; irides light red. Length $4\frac{3}{4}$ inches, extent $6\frac{1}{4}$, wing 2, tail 2, tarsus $\frac{3}{4}$.

This species is by no means rare at Mussoorie and in other parts of the N. W. Himalayas as far as Kashmir. Blyth, through some mistaken impression (I imagine) as to what I had written, says:—"This, and not *Stachyris chrysæa*, is the bird obtained by Adams in Kashmir;" for it will be seen, on reference to the text, that I distinctly state this.

Stoliczka says that it chiefly frequents the zone from 4000 to 7000 feet, and frequents brushwood and low jungle, with the habits of a Tit. I have heard it occasionally utter a clear, musical, bell-like note.

393. STACHYRIS RUFICEPS.

This, it appears, is the *Timalia pileata* of M'Clelland's list of Assam birds (P. Z. S. 1839, p. 161)—though, as a matter of fact, that species is in reality more abundant in Assam.

394. STACHYRIS CHRYSÆA.

The colours of this bird fade much and quickly. I give a description of one obtained recently in freshly moulted plumage. Above bright olivaceous yellow; forehead and crown deep rich yellow, with black streaks; ear-coverts greenish; wings and tail margined with greenish yellow; legs greenish ochrey. Length $4\frac{7}{8}$ inches, extent $6\frac{1}{2}$, wing $2\frac{1}{8}$, tail 2, tarsus $\frac{3}{4}$, foot 1. Hodgson figures the nest as domed and placed on the summit of a sedge; the eggs pinkish white.

395. MIXORNIS RUBRICAPILLA.

Length of a fresh specimen 5 inches, extent $6\frac{3}{4}$, wing $2\frac{1}{4}$, tail 2, bill from front $\frac{1}{2}$, tarsus $\frac{3}{4}$, foot 1$\frac{3}{16}$. Irides dull yellow; legs dingy oil-yellow. It is not rare in long grass and brushwood in Assam, in flocks of eight to ten and more; and Major Godwin-Austen found it apparently still more common, in flocks from twelve to fifteen, in thick bamboo-jungle in Cachar.

396. TIMALIA PILEATA.

Our bird is distinct from the Javan species, and must stand as *Timalia jerdoni*, Walden, Ann. & Mag. Nat. Hist. ser. 4, vol. x. p. 61 (1872).

397 & 398. DUMETIA ALBOGULARIS and D. HYPERYTHRA have been figured by Gould, B. Asia, pt. xii. pls. 15, 16. The latter was previously badly figured in Guérin's Mag. de Zoologie, p. 1835, pl. 40.

399. PELLORNEUM RUFICEPS.

I found this bird very common in Assam. One measured in the flesh was 7 inches in length, extent 9$\frac{1}{4}$, wing 3$\frac{1}{8}$, tail 3, tarsus 1$\frac{1}{10}$, foot 1$\frac{3}{4}$.

Mr. Beavan says it is called *Bulbul postha* in Maubhoom. Now *Bulbul bostha* is the name given by all bird-fanciers to the true Nightingale; and it was probably wrongly applied to this bird.

399 *bis*. PELLORNEUM PALUSTRE, Jerdon, *anteà*, p. 188.

Upper surface uniform olive-brown; forehead and upper tail-coverts with indications of ferruginous; lores, chin, throat, and some of the abdominal feathers pure white; breast-feathers pure white, with broad olive-brown central streaks, in many the white changing into cream-colour, mixed with pale rusty; flanks and thigh-coverts olive-brown, tinged with ferruginous; under tail-coverts and shoulder-coverts bright ferruginous; cheeks and ear-coverts pale rusty; wings and tail ferruginous brown, tinged with olive. Wing 2$\frac{3}{8}$, tail 2$\frac{6}{8}$, tarsus 1.

I found this new species many years ago near Cherapoonjee. I recently found it not rare in Assam in long grass, and also in bush and low tree-jungle; and Major Godwin-Austen also got it at the base of the Khasia hills, near Chatak, in grass and reeds by the margin of rivers and swamps.

Pellorneum subochraceum, Swinhoe, Ann. & Mag. Nat. Hist.

vol. vii. p. 257 (1871), from Tenasserim, is pronounced by Mr. Blanford to be *Pellorneum tickelli,* Blyth.

401. POMATORHINUS FERRUGINOSUS.

The black of the lores and ears is narrowly edged below with white. One measured in the flesh 9 inches, extent $10\frac{1}{2}$, wing $3\frac{3}{8}$, tail $4\frac{1}{4}$, foot $1\frac{9}{10}$.

401 *bis.* POMATORHINUS PHAYRII, Blyth, Journ. As. Soc. Beng. 1847, xvi. p. 452.

This very closely allied species (which chiefly differs from the last in the crown of the head being of the same colour as the back, and in the ferruginous tint being less deep) must be added to the Indian fauna, specimens from Nepal, or more probably from Sikkim, being in Hodgson's collections. The irides were pale yellow in one procured by Major Godwin-Austen. Length 9 inches, extent $10\frac{3}{4}$, wing $3\frac{1}{2}$, tail 4, tarsus $1\frac{3}{8}$, bill from front $1\frac{1}{10}$.

403. POMATORHINUS LEUCOGASTER.

One killed lately in Assam measured in the flesh 9 inches, extent $10\frac{1}{4}$, wing $3\frac{3}{4}$, tail 4, bill from front $1\frac{3}{16}$, foot $2\frac{1}{10}$.

405. POMATORHINUS ERYTHROGENYS.

The wings are olivaceous on the outer web, ashy brown on the inner web; tail olivaceous, obsoletely barred. In winter this bird associates in flocks.

405 *bis.* POMATORHINUS HYPOLEUCUS (Blyth), Journ. As. Soc. Beng. 1844, p. 371.

Pomatorhinus albicollis, Horsf. MS.; Gray, Gen. of Birds, pl. 57.

The White-bellied Scimitar Babbler.

Entire upper surface, wings, and tail ferruginous brown; chin, throat, middle of the breast, and belly creamy white; feathers on the sides of the breast creamy white, with ashy edgings; flanks and under wing-coverts ashy, tinged with the hue of the upper plumage; thigh-coverts white, mixed with ashy; under tail-coverts bright ferruginous. Wing $4\frac{2}{8}$, bill from nostril $1\frac{3}{8}$, tarsus $6\frac{4}{8}$, tail $4\frac{3}{8}$.

This species must be added to the Indian fauna, having been sent by Hodgson (?) probably from Sikkim. It occurs also in

Assam. Tickell (Journ. As. Soc. Beng. 1855, p. 273) notes that the bill in this species is softer than in typical *Pomatorhinus,* and is subcylindrical; the sinciput is flat, the tail broad and fan-like; and it might, perhaps, with *P. erythrogenys,* form a peculiar group. It is the type of *Orthorhinus,* Blyth, *l. c.*

405 *ter*. Pomatorhinus m‘clellandi, nobis, B. of India, vol. ii. p. 32.

This bird was noted by me (*l. c.*) from specimens procured on the Khasia hills. I have since found it by no means rare in Assam, down to the level of the river Burrampootra; and Godwin-Austen got it in Sylhet. I add a brief description.

Above ashy olive, appearing faintly tinged with ferruginous in some lights; forehead distinctly ferruginous; lores, a large spot at the gape, chin, throat, breast, and abdomen white; some of the pectoral feathers tipped with pale spots, coloured like the upper plumage; flanks and some of the abdominal plumes dingy ferruginous ash; nareal plumes and ear-coverts ferruginous; thigh-coverts and under tail-coverts bright ferruginous; a broad stripe following the rami of the mandible. Wing $3\frac{1}{8}$, tail $3\frac{6}{8}$, tarsus $\frac{13}{16}$, bill from gape $\frac{6}{8}$.

406. Xiphorhamphus superciliaris.

Gould, B. Asia, pt. ix. pl. 9.

A female taken on her nest measured $8\frac{1}{2}$ inches, extent $9\frac{1}{4}$, wing 3, tail $3\frac{1}{2}$, bill 2. Irides reddish white, with an outer circle of dull red. The nest was loosely made of grass and bamboo-leaves, lined with fine grass, and contained two fleshy-white eggs.

407. Garrulax leucolophus.

The tail is very faintly but distinctly barred.

408. Garrulax cærulatus.

By an error of the pen or press the wings, instead of the flanks, are said to be ashy blue. The eggs are figured by Hodgson as bright blue.

409. Garrulax delesserti.

Gould, B. Asia, pt. xix. pl. 14.

409 *bis*. **Garrulax gularis** (M'Clelland), P. Z. S. 1839, p. 159.

Gould, B. Asia, pt. xix. pl. 15.

Description.—Head and nape dark fuliginous ashy; throat, cheeks, and upper breast lemon-colour; chin, lores, streak below the eyes, including the ear-coverts, and a small tuft of feathers on the sides of the mandible near the gape black; upper plumage cinnamon-brown, brightest on the upper tail-coverts; lower breast pale lemon-colour, clouded with ashy; sides of the breast fuliginous ashy, not so dark as the head; abdominal region, under tail-coverts, and under wing-coverts bright ferruginous, deepening into mahogany on the flanks; the two middle pairs of rectrices rich brown, with a broad terminal band of dark brown; remaining pairs uniform bright ferruginous; legs and nares in dried specimens yellow; bill horn-colour. Wing 4, tail 4, tarsus $1\frac{3}{8}$, bill from nostril $\frac{6}{8}$.

Gould's figure is taken from a specimen I procured on the Khasia hills in 1862. Godwin-Austen obtained one in the Cachar hills.

410. **Garrulax ruficollis.**

The eggs are figured by Hodgson of a fine green colour.

411. **Garrulax albogularis.**

The lateral tail-feathers are barred with dusky, and the tips white.

412 *bis*. **Garrulax merulinus**, Blyth, Journ. As. Soc. Beng. 1851, p. 521.

Description.—"General colour deep olive-brown; the median part of the underparts pale rufescent whitish brown, and spotted with black on the throat and upper part of the breast much as in *Turdus musicus*; a narrow white streak behind the eye; irides whitish brown; bill dusky plumbeous; legs brown, with albescent toes. Length $9\frac{1}{2}$ inches, expanse of wings 12, closed wing $3\frac{1}{2}$, tail $3\frac{1}{2}$, bill to gape $1\frac{1}{4}$, tarsi $1\frac{5}{8}$. Common in Chera Punji." (Blyth, *l. c.*).

I procured this rare species on the Khasias in 1862, and have not since had an opportunity of observing it.

414. GARRULAX OCELLATUS.

Captain Bulger mentions the fine, clear, and mellow notes of this bird, which I had previously recorded, and says they sounded to him like "*awāy, awāy, aweē,*" whistled in rapid succession. The birds not only (he says) answered one another, but they replied readily to the imitation of this call.

415. TROCHALOPTERON ERYTHROCEPHALUM.

The outer webs of all the wing-feathers are bright greenish yellow, with a rusty tinge, the inner webs being blackish; the tertiaries are broadly tipped with ashy; all the tail-feathers have a yellowish green tinge. These remarks by Stoliczka supply a deficiency in my description. Beavan gives the dimensions of one:—Length 10·625, wing 3·75, tail 4·375, extent 10·25, foot 1·875. The irides are greyish brown; the legs fleshy pink; the bill horny brown.

Hodgson figures the egg as green spotted like that of *Turdus musicus*. All the other species of this group from the Himalayas have the egg unspotted, except (if my information was correct) *T. phœniceum*, which was blue, with a few dusky wavy streaks. The Neilgherry species, however (*T. cachinnans*), has the egg well spotted.

416. TROCHALOPTERON CHRYSOPTERUM.

The greater coverts of the secondaries are also chestnut; and the rufous of the breast gradually changes to olivaceous on the belly. One measured in the flesh $10\frac{1}{4}$ inches in length, wing $3\frac{7}{8}$, tail $4\frac{5}{8}$, extent $11\frac{3}{4}$, tarsus $1\frac{5}{8}$, foot $2\frac{2}{10}$.

417. TROCHALOPTERON SUBUNICOLOR.

Hodgson figures the eggs as green.

417 *bis*. TROCHALOPTERON AUSTENI, Jerdon, apud Godwin-Austen, Journ. As. Soc. Beng. 1870, p. 105.

Description.—Head, nape, and sides of the neck rich rusty brown, each feather with a paler shaft; back and uropygium olive-brown, tinged with the colouring of the head, but devoid of pale shafts; middle pair of rectrices and outer edges of quills above deep rich ferruginous; remaining rectrices dark brown, tipped with pure white, the central pairs more or less edged with the colour of the middle pair. General colour of the under surface of the body similar to that of the head, but each feather terminated by an albescent border and a penultimate brown band, most prominent on the breast; ventral feathers almost entirely albescent, with narrow brown terminal edgings; under tail- and wing-coverts tawny ferruginous, the former faintly tipped with albescent; major wing-coverts and some of the tertiaries with terminal albescent drops; bill black; legs brown. Wing $3\frac{7}{8}$, tail $4\frac{7}{8}$, tarsus $1\frac{1}{16}$, bill from gape $\frac{7}{16}$. The pale central streaking of the head- and neck-plumage varies in degree in each individual.

This species was detected by Major Godwin-Austen on Hengdan peak, in the North Cachar hills, at about 7000 feet of elevation.

418. Trochalopteron variegatum.

I first obtained this species in the valley of the Sutlej, and subsequently in various other parts of the N.W. Hïmalayas up to Kashmir, where it is common in summer in forests at from 8000 to 10000 feet of elevation. My description being taken from a faded specimen, is rather imperfect; and I add a few particulars and corrections. The white line behind the eye is very minute; the winglet is black; the bar on the middle of the wing is situated on the middle of the secondaries; the edge of the shoulder is pure white; the lower tail-coverts are rufous; the middle only of the chin is black; the outer web of the primaries is pearl-grey, sometimes pure, at other times tinged more or less by yellow or greenish yellow or orange; the central tail-feathers are ashy grey, tipped with white, and black at their base; and the outer tail-feathers are in some externally pure grey, in others golden yellow, the inner web being dusky or dingy green. Captain Cock has named those with the wings and tail orange or reddish externally *Trochalopteron humii*; and Mr. Hume has named those with the primaries and tail-feathers pure grey externally *T. simile* (Ibis, 1871, p. 408). As these colours are liable to change and fade in this and other species, I consider them to be all of one species, though, perhaps, varying somewhat according to locality as well as to age or sex*. Stoliczka remarked some females from Lahoul that had the outer webs of the quills only ashy grey tinged with yellow; whilst some males have the outer edges of the wings and tail-feathers bright rufous; moreover, some are more olivaceous on the back, others more ashy. Those I got at Gulmerg, in Kashmir, have the wings and tail pure grey, without any orange. Dimensions of one measured in the flesh were:—length 11 inches, extent 13, wing $4\frac{3}{8}$, tail $5\frac{1}{4}$, tarsus $1\frac{1}{2}$, bill from front $\frac{3}{4}$. Irides yellow green; legs dark yellow; bill black.

419. Trochalopteron affine.

One measured in the flesh was $10\frac{1}{2}$ inches long, extent $12\frac{1}{2}$, wing 4, tail $4\frac{3}{4}$, foot $2\frac{1}{8}$.

420. Trochalopteron squamatum.

The reference to Blyth's 'Catalogue' should be 490.

421. Trochalopteron rufogulare.

The reference to Blyth's 'Catalogue' here is erroneous; it should be 489. The quills have the outer webs greyish olive at their base, then black (from the third primary) in an oblique line increasing in width towards the tip; the secondaries are black-tipped; and the last two or three primaries have a faint white edging on their outer webs, as have the secondaries also. Length of one in the flesh $9\frac{3}{4}$ inches, extent 11, wing $3\frac{3}{4}$, tail 4, tarsus $1\frac{1}{4}$, foot $2\frac{1}{8}$.

423. Trochalopteron cachinnans.

The chin is black, not white (as is, by some mistake, stated in the text).

424. Trochalopteron jerdoni.

In this species also, the chin is black.

424 *bis*. Trochalopteron fairbanki, Blanford, Journ. As. Soc. Beng. xxxviii. pp. 175, 177, pl. 17 *a* (1869).

The Pulney Laughing-Thrush.

Description.—Head above dark brown, the margin of the colour distinct and not passing into any thing else on the nape, but distinctly contrasting with the olive colouring of the back; lores, which are small, and a narrow streak running back from the eye dusky; supercilia and orbital feathers white; back olive, rather brighter towards the rump; wings and tail rather darker; beneath the chin and throat, with the sides of the head below the eyes, rather pale grey, the feathers of the middle of the breast the same, but with dark stripes in the centre; sides of the neck ashy, this colour passing far back close to the dark brown of the head; whole of abdomen and lower tail-coverts ferruginous; flanks and thigh-coverts olivaceous; beak dusky; legs dark plumbeous. Dimensions as in *T. jerdoni*; wing 3·4, tail 3·7, bill at front 0·7.

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* These remarks appear to be well founded; but if there are grounds for establishing two species, there are none for making three. *Cinclosoma variegatum*, Vigors, was described from an example with grey wings; therefore the title *T. simile*, Hume, must be suppressed.—W.

This species is very close to *T. jerdoni,* but differs apparently in the want of the black chin, in the head being darker; the rufous colour of the abdomen is paler; and this colour extends to the under tail-coverts, which are olivaceous in *T. jerdoni.* It abounds in the Pulney range of hills, in Southern India.

T. jerdoni has hitherto only been found by myself on the peak of Banasore, a hill on the south-western edge of the Tognaad, at a height of between 5000 and 6000 feet; but it will probably occur in other equally elevated ridges in that mountainous district or in the conterminous region of Coorg, from which it is not separated by any depression. Banasore is at no very great distance (say 50 or 60 miles) from the western slopes of the Neilgherries; and it would not have been at all remarkable had the Neilgherry species extended all along the crest of the Tognaad to Banasore; but the mass of the heights intervening are mostly at a lower level than this species loves. South of the Neilgherries and the Tognaad occurs a great gap in the hill-region, narrow towards the west, but opening out into the plains of the Carnatic eastward. The Pulney hills rise out of this plain; and they are continued, though at unequal elevation, westward to the Annamally range, which is believed to be still higher, at all events to include certain much more elevated points than the Pulneys. It will be interesting to find what species of *Trochalopteron* inhabits this range, whether *T. fairbanki,* which is perhaps most probable, *T. jerdoni,* or a distinct race. I trust that some of the rising race of ornithologists in the south of India will ere long determine this point, as well as the extension of *T. jerdoni* to Coorg.

425. TROCHALOPTERON LINEATUM.

This is the most common and familiar bird of the group in all the stations of the N.W. Himalayas, from Nynee Tal to Murree and Kashmir. It may be very generally seen feeding on the roads, and allowing a very close approach before it bounds off like a rat down the hill-side. The eggs are pale greenish blue, usually three in number.

427. ACTINODURA EGERTONI.

The egg is figured by Hodgson as pinkish white, whilst that of *A. nipalensis* has been stated to be white, with ferruginous spots. It is not likely that this difference occurs between two such nearly allied species; and one of the statements is therefore probably based upon erroneous information.

429. SIBIA CAPISTRATA.

The reference to Blyth's 'Catalogue' should be 504. Mr. Gray, in his 'Hand-list,' p. 273, separates from this species *Sibia nigriceps*, Hodgson, but, I think, on insufficient grounds.

I accidentally omitted to give the coloration of the wing in this bird. The lesser wing-coverts are black, as are the median coverts; the greater coverts are white for the basal half, the rest grey on the outer web, black on the inner web, some of the last being white with ashy and rufous tips; primaries black-grey at the tips and on the first four outer webs; secondaries dull black, some ashy on the outer webs towards the tips; tertiaries rufous, with pale shafts, ashy on the outer and blackish on the inner margins; the legs are pale livid brown.

Captain Bulger endeavours to syllabize the call of this bird (Ibis, 1869, p. 164).

429 *bis*. SIBIA GRACILIS (M'Clelland), P. Z. S. 1839, p. 159.

The Graceful Sibia.

Description.—Entire under surface white; under tail-coverts pale rusty; head dark smoke-brown; back ashy pale smoke-brown; rump and upper tail-coverts more ashy than brown;

tail deep brown or black, broadly tipped with pale grey; quills brown, the primaries being edged with glossy greenish black for about half their length, the remainder with a narrow border of pale yellowish white; long tertiary nearest the body pale ashy brown. Wing $3\frac{4}{8}$, tail $3\frac{4}{8}$, tarsus 1.

This species replaced *T. capistrata* on the Khasias and other ranges to the eastward, Godwin-Austen having found it tolerably abundant in North Cachar. He observed it hunting for insects in the flowers of the silk-cotton-tree (*Bombax*).

Another species (*Sibia auricularis*, Swinhoe), from Formosa, has been figured (Ibis, 1866, pl. 4).

431. ACANTHOPTILA NIPALENSIS.

The chin and throat are white; the neck and breast rufescent brown, with dark stripes; bill dusky; legs horny brown.

This interesting species was found by Captain Pinwill in Eastern Kumaon, near Lohoo Ghat. He informed me that it sings well.

432. MALACOCERCUS TERRICOLOR.

I have observed, since the publication of the 'Birds of India,' that this species extends over the whole of the N.W. Provinces to the Punjab, and eastwards to Sylhet, which is, I think, its eastern limit. It is therefore the *M. somervillii* of Boyle's list of birds.

433. MALACOCERCUS GRISEUS.

Swinhoe gives this as found in Bombay, which is certainly an error, *M. somervillii* being the only species, I believe, occurring there.

434. MALACOCERCUS MALABARICUS.

Some of Sykes's specimens of *M. somervillii* appear undoubtedly to belong to this species, which Blanford found to replace the former bird (*M. somervillii*) a little inland from the edge of the Ghats.

435. MALACOCERCUS SOMERVILLII.

Mr. Blanford found this well-marked race to be abundant at Khandalla, on the top of the Bhore Ghat,—I having obtained it in Bombay. This naturalist is the only one who has noticed this species, besides myself, since Sykes's time; and I think it clear, from the description of the latter gentleman, that he had this species before him, though it appears probable that he has confounded it with the race named *M. malabaricus* by myself. Mr. Blanford has had the opportunity of observing and procuring specimens of all five species in the space of one year (1867).

436. Malacocercus malcolmi.

This bird is very abundant in the N.W. Provinces from Allahabad upwards, and is far more familiar in its habits than in the south of India, freely entering gardens and compounds.

438. Chatarrhœa caudata.

Blyth notices a race from Candahar, doubtfully distinct from the present bird, as *C. huttoni*, Blyth (Journ. As. Soc. Beng. 1847, p. 476), whence it was brought by Hutton: wing $3\frac{1}{2}$ inches, tail 5. The same naturalist also remarks that *Crateropus fulvus*, Desh., *C. chalybeus*, Bonap., and *C. rubiginosus*, Rüppell, from Africa, appear to be true species of *Chatarrhœa.*

439. Chatarrhœa earlii.

This is the *Malacocercus geochrous,* Hodgson, MS. Extent of foot $1\frac{7}{8}$ inch.

440. Megalurus palustris.

Extent of foot $2\frac{1}{10}$ inch. This species is said to extend to the Philippines. Another fine species was obtained by Wallace in Timor, *M. timoriensis.*

442. Schœnicola platyura.

This rare bird, which has not to my knowledge been procured again since my unique example sent to Blyth (but now lost, I fear), has a considerable general resemblance to *Sylvia cettii.* The generic name *Schœnicola* given by Blyth to my bird, has been since applied by Bonaparte to a group of Buntings.

443. Eurycercus burnesi.

This generic title must stand *Laticilla,* Blyth, Journ. As. Soc. Beng. 1845, p. 596, that of *Eurycercus* having been previously employed by Dr. W. Baird, Ann. Nat. Hist. vol. xi. p. 88 (1843).

Since I procured this bird at Monghyr, I have only seen it again at Kaparthalla, in long grass, whilst out shooting with the late excellent Rajah.

XXXVII.—*Notes on the Birds of Nicaragua, based upon a Collection made at Chontales by* Mr. Thomas Belt. By Osbert Salvin, M.A. &c.

Though the Coleoptera and Diurnal Lepidoptera of Nicaragua have received considerable attention at the hands of the English residents in the mining-districts of Chontales, birds have as yet been comparatively overlooked, and until now the only bird-skins I have had the opportunity of seeing were sent from there by Mr. E. M. Janson. It was therefore with considerable interest that I examined a collection, comprising 130 skins of 73 species, quite recently made by Mr. Belt, and brought to this country by his wife.

Our knowledge of the birds of this district is extremely limited, and is contained partly in the scattered notes on De Lattre's collections published by Prince Bonaparte in his "Notes Ornithologiques" and in the 'Comptes Rendus' for 1853 (vol. xxxvii. pp. 806–810), partly from M. Sallé's exploration, who also visited Nicaragua, but of whose collections I am not aware that any account was ever published. The 'Annals of the Lyceum of New York,' vol. viii. pp. 179–185, also contains a paper by Mr. Lawrence on a collection formed at Greytown, Nicaragua, by Mr. H. E. Holland. In this list 61 species are enumerated. In the 'Proceedings of the Zoological Society' for 1867, pp. 178–180, a list of Birds collected on the Blewfields River by Mr. H. Wickham is given, drawn up by Mr. Sclater and myself, in which mention is made of 39 species. We have also in our cabinet a few skins from a collection made on the shores of the Lake of Nicaragua by the late Mr. Bridges, better known for his explorations in Bolivia and California, who died in the country. A very few additional species were collected by the officers of the 'Sulphur' during Captain Kellett's voyage. These are recorded as having been obtained at the port of Realejo, on the Pacific coast, where I also secured a few skins in company with Captain Dow during my passage down the coast of Central America in 1863.

The number of species mentioned in these various papers only amounts to about 150, including the present list compiled from

Mr. Belt's collection. A glance at the riches of the surrounding countries, Guatemala with its 600 species and upwards, and Costa Rica with considerably over 500, shows that we cannot consider our knowledge of the bird-fauna of Nicaragua at present anything more than fragmentary; for, Nicaragua being clothed with rich tropical vegetation, interspersed with open plains, and also possessing a volcanic chain of mountains of no inconsiderable altitude, we cannot but anticipate that future explorations will reveal a bird-fauna as rich in specific forms as that we know to exist in the surrounding regions.

Though our knowledge can only be considered imperfect, enough is before us to enable us to form a tolerably accurate opinion as to which of the two subprovinces of the Central-American fauna the eastern or Chontales side of Nicaragua belongs. These subprovinces are indicated in my two papers on Veraguan Birds, published in the 'Proceedings of the Zoological Society' for 1867 and 1870. I there endeavoured to show that the district lying on the South-American side of the lake of Nicaragua, and that included in Southern Mexico and Guatemala, formed two great faunistic divisions of Central America. The birds noticed in the present paper are from no great distance from the boundary between the two; but they show pretty conclusively that the depression of the Isthmus, represented by the great Nicaraguan lakes and their outfall, the Rio San Juan, does not form the actual boundary between them, but that this boundary must be sought further north-westwards, towards Honduras. What I suspect to be the case, though I cannot as yet bring evidence to prove it, is that the forests of Chontales spread uninterruptedly into Costa Rica, but that towards the north and north-west a decided break occurs and that this break determines the range of the prevalent Costa-Rican and Guatemalan forest-forms.

There are difficulties connected with the supposition that the Lake of Nicaragua once formed the bed of an interoceanic channel, when viewed with reference to the very peculiar aspect of the freshwater fish of the lake; but this extension of the southern bird-fauna is by no means incompatible with the theory of the former existence of such a channel, if then (as would appear to be the case now) the northern forests of Guatemala did not extend continuously to its margin. On the land commencing to assume its present contour the southern forest might have spread with the gradual upheaval of the earth, and carried its forest-forms with it.

It is only a small portion of a fauna that gives us a clue to form such hypotheses as the present; and the more limited the area investigated the fewer such test-species become. Species of wide range do not help us; and we are left to form conclusions from the range of such species as stand quite distinct in one district only, and also from such as are represented in both by allied races. The following summary will show how Chontales is connected as regards its bird-fauna.

Of southern species which here find the northern limit of their range, we have 32 species, which are:—

Basileuterus uropygialis.
Dacnis cayana.
Calliste laviniæ.
Phœnicothraupis fuscicauda.
Lanio leucothorax.
Tachyphonus luctuosus.
Pitylus grossus.
Embernagra striaticeps.
Cacicus microrhynchus.
Synallaxis pudica.
Dendrornis lacrymosa.
Phlogopsis macleannani.
Grallaria dives.
Copurus leuconotus.
Myiozetetes granadensis.
Myiarchus nigricapillus.
Pipra leucorrhoa.
Carpodectes nitidus.
Chalybura melanorrhoa.
Thalurania venusta.
Microchera parvirostris.
Clais meritti.
Momotus martii.
Prionirhynchus platyrhynchus.
Trogon atricollis.
Monasa grandior.
Neomorphus salvini.
Ramphastus tocard.
Selenidera spectabilis.
Odontophorus melanotis.
Botaurus pinnatus.
Porzana albigularis.

Of northern species ranging no further southwards only seven can be enumerated, viz.:—

Tyrannulus semiflavus.
Camptostoma imberbe.
Heliomaster pallidiceps.
Thaumantias candidus.
Prionirhynchus carinatus.
Trogon elegans.
Conurus astec.

Thus we see that the connexion with Costa Rica and the south is much closer than that with Guatemala and the north.

The following Table shows that a similar state of things exists as regards the species represented by allied forms in the two districts.

COSTA RICA.	CHONTALES.	GUATEMALA.
P. fuscicauda.	Phœnicothraupis fuscicauda.	P. rubicoides.
L. leucothorax.	Lanio leucothorax.	L. aurantius.
E. striaticeps.	Embernagra striaticeps.	E. chloronota.
S. pudica.	Synallaxis pudica.	E. erythrothorax.
P. albigularis.	Porzana albigularis.	P. rubra.
T. brunneicapillus.	Tyrannulus semiflavus.	T. semiflavus.
H. longirostris.	Heliomaster pallidiceps.	H. pallidiceps.

One more circumstance remains to be noted. If at present we except *Thryothorus brunneus*, which I do not know, and which was described by Mr. Lawrence from an imperfect skin, no species appears to be peculiar to Chontales and Nicaragua. Does not this fact prompt the supposition that the fauna is a derivative one, and that its presence dates from no distant period?

TURDUS GRAYI, Bp.
Chontales (*Janson*).

TURDUS TRISTIS, Sw.
T. leucauchen, Salv. P. Z. S. 1867, p. 133.
Chontales (*Belt*).

A single specimen of this Thrush has its plumage variegated with white feathers. The normal plumage is very dark, perhaps in consequence, and in this respect is even more deeply coloured than in any of the Vera-Paz specimens we possess, and to which I have already alluded (*l. c.*).

DENDRŒCA BLACKBURNIÆ (Gm.).
Chontales (*Belt*).

HYLOPHILUS DECURTATUS (Bp.).
Chontales (*Belt*).

VIREOLANIUS PULCHELLUS, Scl. & Salv.
Chontales (*Belt*).

A single specimen of this species, which has already been traced southwards through Costa Rica and Veragua to Panama.

DACNIS CAYANA (Linn.).

Chontales (*Belt, Janson*).

Mr. Belt sends one specimen of this species; and I possess another from the same locality, which was collected by Mr. Janson. These approach to a trifling extent rather nearer to *D. ultramarina*, Lawr., than the Veraguan specimens already referred by me to *D. cayana* (P. Z. S. 1870, p. 185). This is the first recorded instance of any member of this genus being found northwards of the Costa-Rica fauna.

CHLOROPHANES GUATEMALENSIS, Scl.

Chontales (*Belt*).

Two male examples.

CŒREBA CYANEA (Linn.).

C. carneipes, Salv. P. Z. S. 1867, p. 137, 1870, p. 185.

Chontales (*Belt*).

I doubt if the differences stated to exist between the Central and South American races can be maintained.

EUPHONIA GOULDI, Scl.

Chontales (*Belt*).

A single male specimen is in the collection.

CALLISTE LAVINIÆ.

Cassin, Pr. Ac. Phil. 1858, p. 178, 1860, p. 142, t. 1. fig. 1.

Chontales (*Belt, Janson*).

This species of *Calliste* was first obtained on the river Truando by Mr. Wood during Lt. Michler's Darien Expedition. Until quite recently it was only known to us from Cassin's description and plate as quoted above. Within the last few weeks, however, two specimens have come into our possession. The first was collected with a few other bird-skins by Mr. E. M. Janson at Chontales; and the other I picked out of a large series of birds recently brought to this country from Costa Rica by Dr. Van Patten. In addition to these, Mr. Belt's collection contains several examples; so that it would appear that the species is by no means rare at Chontales. The species clearly belongs to the *gyrola* group of the genus, and is perhaps more nearly allied to *C. gyrola* of Cayenne itself than to either *C. gyroloides*, which abounds in the country where *C. laviniæ* is found, or *C. desmaresti* of Venezuela. It has, like *C. gyrola,* the under surface green, with the centre of the abdomen blue. Unlike *C. gyrola,* however, the lesser wing-coverts and the edges of the inner primaries are rufous; and this character forms a distinctive feature in this species. It is also marked by the green colour of the throat reaching up to the mandible, the mentum in the other species being rich rufous, like the head.

Calliste larvata, Du Bus.
Chontales (*Belt*).

The differences stated to exist between this species and the more southern *C. franciscæ* become almost evanescent when an extensive series of the two are brought together. The Chontales specimens, if any thing, incline to the Guatemalan race.

Tanagra diaconus, Less.
Chontales (*Belt*).

Ramphocœlus passerinii, Bp.
Chontales (*Belt*).

Ramphocœlus sanguinolentus (Less.).
Chontales (*Belt*).

Pyranga rubra (Linn.).
Chontales (*Belt*).

Pyranga æstiva (Gm.).
Chontales (*Belt*).

Phœnicothraupis fuscicauda, Cab.
Chontales (*Belt*).

A single male specimen in Mr. Belt's collection and another from Mr. Janson agree accurately with one from Costa Rica, whence Cabanis's type was derived. The species has not hitherto been noticed north of Costa Rica, its place being taken in Guatemala and Mexico by *P. rubicoides* (Lafr.).

Eucometis spodocephala, Bp.
Nicaragua (*Bridges*).

TACHYPHONUS LUCTUOSUS.

D'Orb. & Lafr. Mag. Zool. 1837, p. 29; D'Orb. Voy. Ois. t. 20.

Chontales (*Belt*).

This species, already well known in Costa Rica, I now trace to Chontales, whence Mr. Janson has sent a single specimen.

LANIO LEUCOTHORAX, Salv.

Scl. & Salv. Ex. Orn. p. 63, t. xxxii.

Chontales (*Belt*).

The range of this species also is now shown to extend northwards of Costa Rica, three male examples being in Mr. Belt's collection. In Guatemala its place is taken by *L. aurantius*, Lafr.

ARREMON AURANTIIROSTRIS, Lafr.

Chontales (*Belt*).

PITYLUS POLIOGASTER, Du Bus.

Chontales (*Belt*).

PITYLUS GROSSUS (Linn).

Chontales (*Janson*).

Mr. Janson's Chontales collection contained an example of this species. It is well known to the Costa-Rica collectors, but has not hitherto been noticed so far north.

GUIRACA CONCRETA (Du Bus).

Chontales (*Janson*).

SPERMOPHILA CORVINA, Scl.

Chontales (*Belt*).

CYANOSPIZA CYANEA (Linn.).

Chontales (*Belt*).

OCYALUS WAGLERI, G. R. Gray.

Chontales (*Belt*).

CACICUS MICRORHYNCHUS, Scl. & Salv.

Chontales (*Belt*).

ICTERUS BALTIMORENSIS (Linn.).

Chontales (*Belt*).

DENDRORNIS LACRYMOSA, Lawr.

Chontales (*Belt*).

Formicivora boucardi, Scl.
Chontales (*Belt*).

Phlogopsis macleannani, Lawr.
Chontales (*Belt*).

Mr. Belt notes that the bare part of the head of this bird is blue. The species has not before been noticed north of Costa Rica.

Copurus leuconotus, Lafr.
Chontales (*Belt*).

Myiozetetes granadensis, Lawr.
Scl. & Salv., P. Z. S. 1867, p. 279.
Chontales (*Belt*).

Megarhynchus mexicanus (Lafr.).
Chontales (*Belt*).

Myiodynastes luteiventris, Scl.
Chontales (*Janson*).

Milvulus tyrannus (Linn.).
Chontales (*Belt*).

Milvulus forficatus (Gm.).
Chontales (*Belt*).

Costa Rica seems to be the southern limit of the range of this northern species.

Tityra personata, Jard. & Selb.
Chontales (*Belt*).

Lipaugus unirufus, Scl.
Chontales (*Belt*).

Pipra mentalis, Scl.
Chontales (*Belt*).

Pipra leucorrhoa, Scl.
Chontales (*Belt*).

This is the first time this species has been met with north of Costa Rica. Mr. Belt sends two specimens.

Chiroxiphia linearis, Bp.
Chontales (*Belt*).

This Isthmean species extends its range southwards into Costa Rica; but at Chiriqui the continental *C. lanceolata* supplants it.

PHAETHORNIS LONGIROSTRIS (De Latt.).

Chontales (*Belt*).

PHAËTHORNIS ADOLPHI, Bourc.

Chontales (*Belt*).

CHALYBURA MELANORRHOA, Salv.

Chontales (*Belt*).

This species has hitherto only been sent from Costa Rica. Two pairs are in Mr. Belt's collection. The female, of which we have had a Costa-Rica skin for some time, does not appear to have been as yet described. It much resembles the same sex of *C. isauræ*, of which I have given a short description (P. Z. S. 1867, p. 152). It differs, so far as I can see, only in having the tail deeper purplish bronze, and in the crissum being dingy instead of pure white.

THALURANIA VENUSTA, Gould.

Chontales (*Belt*).

Mr. Belt's specimens show a further northward extension of the range of this species.

FLORISUGA MELLIVORA (Linn.).

Chontales (*Belt*).

MICROCHERA PARVIROSTRIS (Lawr.).

Salv. P. Z. S. 1867, p. 154; Lawr. Ann. Lyc. N. Y. ix, p. 122.

Chontales (*Belt*).

Several males and one female of this beautiful species are in Mr. Belt's collection. The former agree accurately with Costa-Rican examples, and differ from the true *M. albocoronata* in the manner pointed out by Mr. Lawrence and myself (*ll. cc.*). This, again, is an instance of a northward extension of the range of a hitherto purely Costa-Rican species.

CLAIS MERITTI (Lawr.).

Chontales (*Belt*).

The difference between this and the southern race *C. guimeti* is so very slight that I doubt if it will prove to be ultimately separable. The species is known from Costa Rica, but not so far north as the present specimens indicate.

Heliothrix barroti (Bourc.).
Chontales (*Belt*).

Petasophora delphinæ (Less.).
Chontales (*Belt*).

Heliomaster pallidiceps, Gould.
Salv. P. Z. S. 1867, p. 155.
Chontales (*Belt*).

Though I have hitherto hesitated to unite the Mexican and Guatemalan *H. pallidiceps* with the southern *H. longirostris*, the differences between them are so extremely slight that I doubt if the two races can be ultimately maintained as distinct. The paler colouring of the head of the more northern bird probably indicates a tendency towards differentiation rather than an established specific difference. However, the Chontales bird agrees with my Guatemalan examples rather than with others from more southern localities, the colouring of the crown being of precisely the same tint.

Thaumantias candidus (Bourc. et Muls.).
Chontales (*Belt*).

This species, so common in Guatemala, has not yet been noticed in Costa Rica; and this is the most southern locality whence I have seen it. Mr. Belt's collection contains a single example.

Amazilia riefferi (Bourc.).
Chontales (*Belt*).

Chrysuronia eliciæ (Bourc. et Muls.).
Chontales (*Belt*).

Centurus pucherani (Malh.).
Chontales (*Belt*).

Celeus castaneus (Wagl.).
Chontales (*Belt*).

Momotus martii, Spix.
Chontales (*Belt*).

Not before noticed north of Costa Rica.

Momotus lessoni, Less.
Chontales (*Belt*).

Prionirhynchus platyrhynchus, Leadb.
Chontales (*Belt*).

This species was also procured on the Blewfields River by Mr. Wickham.

Prionyrhynchus carinatus, Du Bus.
Scl. Cat. Am. B. p. 263.
Chontales (*Belt*).

Quite recently two Guatemalan skins of this rare species have come into our possession, though it entirely escaped my observation during my stay in that country. Mr. Belt's collection contains a single example, so that in Chontales we find both species occurring together. *P. carinatus* was obtained near Lake Yojoa by Mr. G. C. Taylor, and is evidently a species of much wider northern range than its congener, which, common in Costa Rica and southwards to Panama, has not been known to pass the present district. The two, though strictly congeneric, are easily recognizable as species, *P. platyrhynchus* having the whole head and neck rufous, these parts being green like the back in *P. carinatus*.

Ceryle alcyon (Linn.).
Chontales (*Janson*).

Ceryle cabanisi, Tsch.
Chontales (*Belt*).

Galbula melanogenia, Scl.
Chontales (*Belt*).

Trogon massena, Gould.
Chontales (*Belt*).

Trogon atricollis, Vieill.
Chontales (*Belt*).

I am at a loss to discover any really tangible characters whereby to distinguish the Central-American bird called *T. tenellus* by Cabanis (described from an immature male!) from the true *T. atricollis* of Vieillot, which name must be applied without doubt to the Guiana and Trinidad bird. The mottling of the wing-coverts, the number of bars on the tail, and the precise shade of the colouring of the central tail-feathers, as well as the breadth and squareness of the rectrices themselves, are all somewhat variable characters in this group, upon which it is not safe to place too much reliance in seeking for specific differences. So far as our large series shows, the older the male bird the squarer, broader, and shorter are the rectrices, the greater the number of bars on the tail, and the finer the mottling of the wing-coverts. Compared with a specimen of *T. atricollis* from Demerara, a male from Chontales has rather fewer bars on the tail, the colour of the underparts is rather more of a lemon tinge, and the two central feathers of the tail have a bluer tint. These differences are barely definite, and are not, in my opinion, sufficient to justify the separation of *T. tenellus* as a distinct species.

TROGON CALIGATUS, Gould.
Chontales (*Belt*).

TROGON ELEGANS, Gould.
Nicaragua (*Bridges*).

We have a single skin of this northern species from Virgin Bay, Lake Nicaragua, which was collected by the late Mr. Bridges.

TROGON MELANOCEPHALUS, Gould.
Chontales (*Belt*).

BUCCO DYSONI, Scl.
Chontales (*Belt*).

MONASA GRANDIOR.
Scl. & Salv. P. Z. S. 1868, p. 327.
Chontales (*Belt*).

In our original notice of this species we mentioned its probable occurrence in Mosquitia. A specimen in Mr. Belt's collection confirms this extension of the range of the species beyond the limits of Costa Rica.

NEOMORPHUS SALVINI.
Scl. P. Z. S. 1866, p. 60, pl. v.
Chontales (*Belt*).

Mr. Belt sends a single skin of this species, which I have hitherto only known from Veragua.

PIAYA MEHLERI, Bp.
Chontales (*Belt*).

PTEROGLOSSUS TORQUATUS, Wagl.
Chontales (*Belt*).

RAMPHASTUS TOCARD, Vieill.
Chontales (*Belt*).

SELENIDERA SPECTABILIS, Cassin.
Chontales (*Belt*).

Neither this nor the last-mentioned species has been before noticed north of Costa Rica.

NAUCLERUS FURCATUS, Vieill.
Chontales (*Belt*).

TINNUNCULUS SPARVERIUS (L.).
Chontales (*Belt*).

LEUCOPTERNIS GHIESBREGHTI (Du Bus).
Chontales (*Belt*).

ODONTOPHORUS MELANOTIS, Salv.
Chontales (*Belt*).
A head only.

XXXVIII. *On a New Parrakeet of the genus* Loriculus *from the Philippine Islands.* By P. L. SCLATER, M.A., Ph.D., F.R.S.

(Plate XI.)*

IN April 1871 the Zoological Society of London obtained by purchase, of a dealer in Liverpool, a pair of Parrakeets of the genus *Loriculus,* said to have been brought from the Philippine Islands. These I determined as *Loriculus culacissi,* that being the species in Dr. Finsch's excellent Monograph* with which they appeared to agree most nearly. Along with these birds the Society also obtained a specimen of *Tanygnathus luconensis,* the Philippine representative of these large-billed Parrots, which was likewise new to the Society's collection.

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* [This Plate will be issued with the October number.—ED.]

In the list of additions to the Zoological Society's Menagerie, published in the 'Field' of 26 May, 1871, and also in my Report on the additions in the month of March 1871 in the Society's 'Proceedings' (1871, p. 479), the pair of *Loriculus* are inserted as *L. culacissi,* as likewise in the 'Revised List of Vertebrates,' just published (p. 202)†.

Last autumn the female of this pair of *Loriculus* laid several eggs. Two of these were removed and placed in the nest of an Undulated Parrakeet (*Melopsittacus undulatus*). In this way one was hatched in the Gardens on the 27th of August last, but did not live to attain maturity.

On his return from the Philippines, in June last, Dr. A. B. Meyer brought with him, amongst other living birds, a single male example of this same *Loriculus,* which I purchased for the Society's Menagerie. Dr. Meyer, on my informing him that I had determined the species as *L. culacissi,* at once stated that he believed this bird, which he had obtained on the island of Zebu, not to be the true *culacissi,* and, in order to settle this question, was kind enough to allow me to examine his series of skins of the Parrots of this genus. On comparing them with the descriptions in Dr. Finsch's Monograph I found that Dr. Meyer was undoubtedly correct. Three species are represented in Dr. Meyer's Philippine collection—namely, the true *Loriculus culacissi* from Luzon, *Loriculus regulus* from Negros and Panay, and the present species obtained only on the island of Zebu. The present bird is at once distinguishable from its two allies by its golden back, whence I propose to call it

LORICULUS CHRYSONOTUS, sp. nov. (Plate XI.)

Viridis: fronte, uropygio et caudæ tectricibus cum mento et

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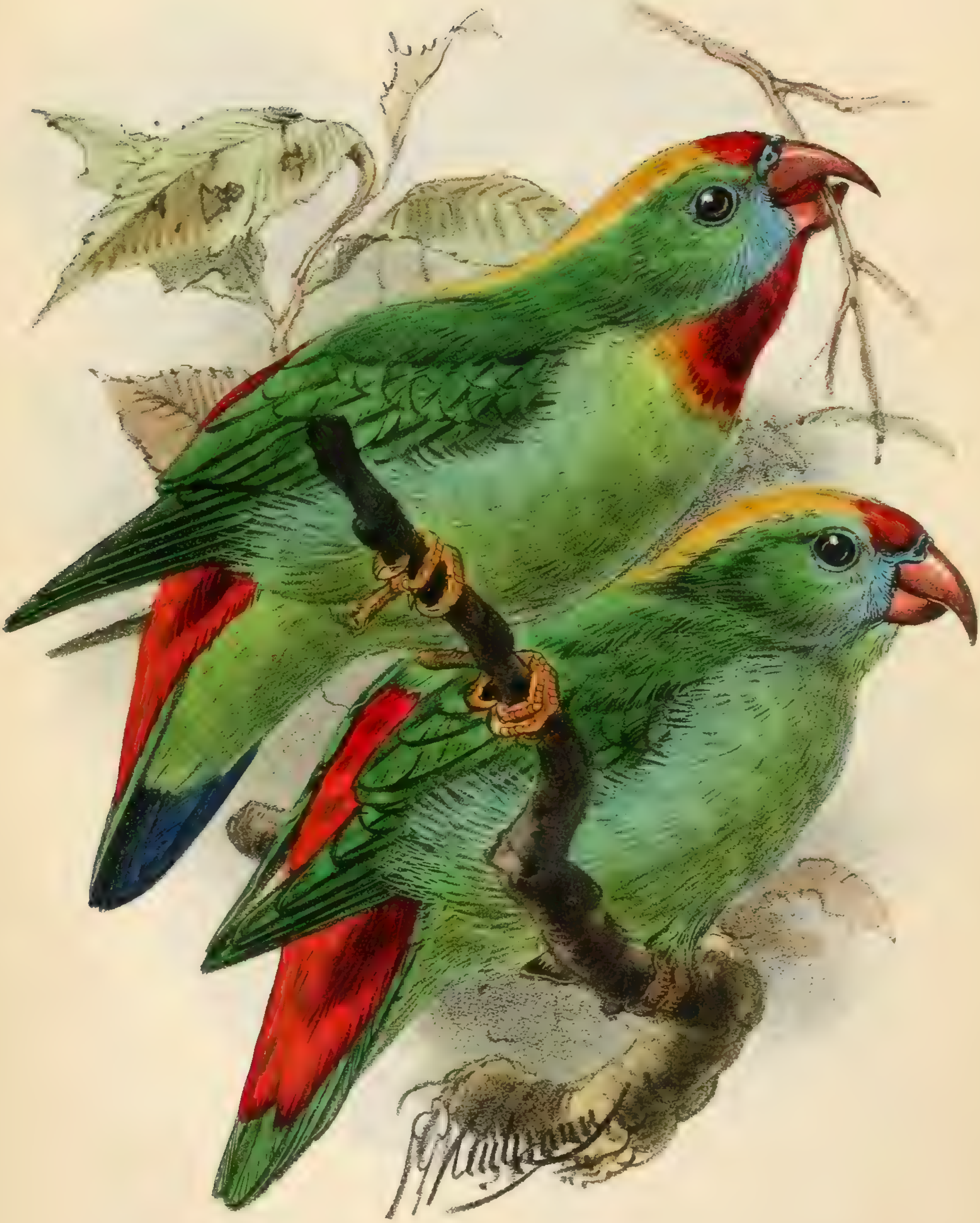
* Die Papageien, monographisch bearbeitet, von Dr. Otto Finsch, 2 vols. Leiden, 1868.

† Revised List of Vertebrated Animals now or lately living in the Gardens of the Zoological Society of London. London, 1872.

Ibis 1872 Pl. XI



J. G. Keulemans lith.

M & N Hanhart imp.

LORICULUS CHRYSONOTUS

gutture coccineis: capite colloque supero usque ad dorsum medium aureo-flavis: rostro rubro, pedibus flavis. *Fem.* maculâ gutturali caret: long. tota 5·9, alæ 3·8, caudæ 2.

Hab. ins. Zebu, Philippinarum.

Obs. Affinis *L. culacissi* et *L. regulo,* sed pileo dorsoque aureo-flavis distinctus.

The Plate represents the pair of this beautiful species purchased by the Zoological Society on the 24th of March, 1871, from a sketch by Mr. Keulemans.

XXXIX.—*Letters, Announcements, &c.*

We have received the following letters addressed to "The Editor of 'The Ibis'":—

Sir,—Would one of your readers kindly give a description of the egg of *Eudynamis taitiensis,* the long-tailed Cuckoo of the Pacific?

Thomas H. Potts.

Ohinitahi, N. Z., Feb. 5, 1872.

[In 'The Birds of New Zealand,' p. 76, Mr. Buller says, "An egg, forwarded to me some years ago by the Rev. R. Taylor, of Wanganui, as belonging to this species, is almost spherical in shape, with a slightly rough or granulate surface. It is of a pale buff or yellowish-brown colour, and measures 1·25 inch in length by 1·15 in breadth. I ought to state, however, that it was obtained from a native, and that its authenticity cannot be considered quite certain."—Ed.]

Sir,—Whilst journeying in the dense bush which clothes the western slopes of the middle island, making acquaintance with the Kinei and Kakapo, the note of a bird was heard that was new to us; it was evidently that of a *Gerygone,* but differed much from that of our familiar gully-haunting warbler. The habitat was unusual, *in the thick bush,* between the bluff of Okarito and Lake Mapourilla; whereas our little Riroriro delights in trilling from the shrubs on the creek side or more open country, or in flitting about the bushy vegetation of the gullies that fringe or form the outskirts of a forest. Neither my son, who accompanied me, nor myself had ever heard a similar note; with diffidence we set it down as a new species; for the next few days, whilst rambling in that locality, we heard the same note repeatedly, and saw the birds, but we never observed one of them on the outside of the bush. The diagnosis of a male bird, killed Dec. 20, four miles W. of Lake Mapourilla, is here given. (This bird was in full song.) Upper surface dark olivaceous; wings smoky black, except first two feathers, outer webs fringed with yellow; cheek dark grey, darkest in a line from the gape through the eye; chin grey; neck and breast pale grey; abdomen white; under wing-coverts white; upper wing-coverts brown, margined with yellow; upper tail-coverts slaty black, tipped with yellow; tail brown, with a broad band of black, two centre feathers black, tipped with brown, four feathers on each side tipped with white on inner webs, pale brown on outer web, two outer feathers broadly barred with white, tipped with brown. Bill, black; both mandibles horn-colour at the point; legs and feet black; inside of feet yellowish flesh; irides bright blood-red. Bill, from gape, 6 lines; wing from flexure 2 inches; tail 2 inches 2 lines; tarsus 9 lines; middle toe and claw 5 lines; total length 4 inches 5 lines.

We hesitate to give this species a new name, having the fear of the cabinet ornithologist before our eyes.

THOMAS H. POTTS.

Ohinitahi, N. Z., Feb. 5, 1872.

[Mr. Buller, to whom we submitted Mr. Potts's letter, has kindly forwarded us the following note respecting this species of *Gerygone*:—" The bird described by Mr. Potts as possibly a new species of *Gerygone* is, I believe, *Gerygone albofrontata* (G. R. Gray, Voy. Ereb. & Terr. Birds, p. 5, pl. 4. f. 2). Mr. Gray remarks (p. 6), "This fine species was brought by Dr. Dieffenbach from New Zealand;" but the single specimen in the British Museum on which the description is founded is labelled as having come from the Chatham Islands. The figure of the species in the 'Voyage of Ereb. & Terr.' is apt to give a very false idea of this bird.—ED.]

Allahabad, 18th March, 1872.

Dear Sir,—Dr. Jerdon, in some additional notes on the Birds of India, in 'The Ibis' for January 1872, p. 11, mentions that "Messrs. Marshall disbelieve in the species *Megalæma marshallorum* of Swinhoe." Since the publication of the 'Monograph of the Capitonidæ' we have been fully convinced that the species will hold good. We made mention of it in an Appendix, which unfortunately arrived from this country too late for publication with our last part.

We regret the oversight in the book, and take this opportunity of acknowledging its occurrence.

The plate in the Monograph named *M. virens* is really *M. marshallorum,* while of the true *M. virens,* the Chinese bird, no figure is given. Mr. Swinhoe's diagnosis, published in the Annals (Ann. & Mag. Nat. Hist. ser. 4, vol. vi. p. 348), sufficiently points out the specific distinctions; it is therefore unnecessary to repeat them here.

While on the subject, we would wish to acknowledge the correctness of Lord Walden's remarks in 'The Ibis' for April 1871, page 163, regarding *Caloramphus lathami,* the true name being *Caloramphus hayi.*

Yours truly,
C. H. T. Marshall & G. F. L. Marshall.

Sir,—I am desirous of recording in 'The Ibis' the following miscellaneous notes:—

1st. In a collection of birds of prey recently submitted to me for examination by Mr. Edward Gerrard, jun., were three from the island of Formosa, which I think worthy of notice, viz.:—

Æsalon lithofalco (Gmel.), an immature male beginning to assume adult plumage. This is the most south-easterly specimen of the Merlin which has come under my notice, though further to the north this species occurs as far eastward as the shores of the Sea of Okhotsk, an example from that locality being preserved in the Norwich Museum, where the present specimen is also about to be placed.

Scops japonicus, Tem. & Schl.—This is the first individual of this species, which, so far as I know, has been satisfactorily identified as a native of Formosa, some confusion having occurred between this species and another small horned Owl which also inhabits Formosa, *Lempijius hambroecki*, described by Mr. Swinhoe in the 'Annals and Magazine of Natural History' for 1870, vi. p. 153, to whose remarks I beg leave to refer.

The type specimen of *L. hambroecki* is preserved in the Norwich Museum, which has also acquired the Formosan specimen of *Scops japonicus* here referred to.

In the Proceedings of the Zoological Society for 1871, p. 343, Mr. Swinhoe unites *Scops japonicus* with *Scops sunia* of Hodgson, which is a native of India.

This view is also adopted by Professor Schlegel, in the 'Mus. des Pays Bas,' Oti, p. 20; but I have not had the opportunity of examining a sufficient series of specimens to enable me to form an opinion as to whether the Indian race is really identical with that which occurs in China, Japan, and Formosa, and I therefore retain provisionally for the latter the distinctive appellation of *Scops japonicus*.

BRACHYOTUS ACCIPITRINUS (Gmel.).—This is, I believe, the first instance of the almost cosmopolitan Short-eared Owl being recorded from the Island of Formosa.

2nd. I am desirous of offering a few remarks on the subject of *Aquila clanga* of Pallas.

The Eagle described by Pallas under this name at p. 351 of his 'Zoographia Rosso-Asiatica' is probably the large race of *Aquila nævia*, which is so frequently received in collections from Sarepta on the Volga, and also from the countries adjacent to the mouth of the Danube, and which only differs from the typical *A. nævia* in its larger size and in having indistinct transverse bars of dark grey on the rectrices and also on the inner webs of the secondary wing-feathers. Pallas's description appears by the measurements to have been most probably taken from a male bird of this large race, to which the name of *Aquila clanga* has therefore been applied by most English ornithologists.

I have hitherto been one of those who have thus used the name of *Aquila clanga*; but as, on reexamining Pallas's original article, it appears to me that he was not aware of the distinction between what may be called the smaller and larger races of *Aquila nævia*, it is probable that he considered the description of his *Aquila clanga* applicable to both; and I would therefore suggest the propriety of using for the larger and certainly distinct race, of which the head quarters appear to be about the mouths of the Volga, the specific name of "*orientalis*" proposed for it by Cabanis in the 'Journal für Ornithologie,' 1854, p. 369 (note).

It should, however, be observed that *Aquila orientalis* must not be confused with another nearly allied, but yet larger, Eagle which inhabits the country of the Amoor river, and to which Mr. Swinhoe has given the specific name of *amurensis*. Vide Proc. of the Zool. Soc. 1871, p. 338.

3rd. I am also desirous of calling attention to what appears to me to be an accidental error in Dr. Jerdon's "Supplementary Notes" in 'The Ibis' for the present year at p. 139, where, under the head of *Oreocincla dauma*, it is stated that the Thrush obtained in Formosa by Mr. Swinhoe, and named by that gentleman *O. hancii*, is now considered by him to be identical with *O. dauma*; but in Mr. Swinhoe's paper on the Birds of China in the Zool. Society's Proceedings for 1871, at p. 368, he give *O. hancii* as a synonym of the well-known "White's Thrush," *O. varia* (Pallas); and the latter identification was also communicated to me in a letter with which Mr. Swinhoe favoured me on the subject.

4th. It is well known that the South-African Ostrich is now largely kept in the colony of the Cape of Good Hope in a semi-domesticated state for the sake of its valuable plumes.

I have recently seen a letter from a gentleman engaged in that colony in this new pursuit of "Ostrich-farming," which gives some particulars respecting the incubation of his tame Ostriches (twenty-seven in number) that appear to me worthy of being recorded in the pages of 'The Ibis.' He says, "Two females generally lay in one nest, and sit from 7 A.M. during the day, the cock keeping guard somewhere near; at 5 P.M., as regularly as possible every night, the hens leave the nest, and the cock takes his turn. They lay more eggs than they can sit upon: there are often between forty and fifty in a nest; so there has been a great want of incubators for the surplus eggs—two very good ones have been invented in the colony."

5th. I have to offer a few observations on the occurrence of *Somateria stelleri* in the North Pacific Ocean.

In the article on this scarce Duck contained in Part 3 of Messrs. Sharpe and Dresser's admirable work on the Birds of Europe, reference is made to a female of this species purchased by me several years since from a person who sailed as ship's steward in the Arctic Expedition commanded by Captain Collinson.

I regret that owing to my absence from Norfolk, and to the mislaying of a contemporary memorandum which I have since found, the information which I furnished to Messrs. Sharpe and Dresser was not so complete as it should have been; and I am therefore now desirous of supplementing it by such further particulars as I am at present in a position to supply.

The number of specimens of *Somateria stelleri* which I purchased from Captain Collinson's steward was not one, but two, both of which were obtained in July 1854, on Flaxman's Island, lat. 70° 11′ N., and long. 145° 50′ W.

These specimens appear to be an adult male and female, exactly agreeing with European examples in full dress, except that in the male bird the green band on the occiput appears rather narrower, the inner scapulars and the adjoining feathers of the back rather more tinged with brownish, and the buff feathers on the upper part of the breast adjoining the throat somewhat paler and more tinged with greenish brown at the tips than is the case in a full-plumaged European male with which I have compared the American specimen.

I am, Sir, &c.,

Marldon, Totnes, June 1, 1872. J. H. Gurney.

Sir,—Captain Hayes Lloyd, in an interesting letter (*anteà*, p. 197) has stated his conviction to be that *Cyornis tickelliæ*, Blyth, is the female of *Cyornis jerdoni*, G. R. Gray (olim *C. banyumas*, Horsf., apud Jerd.). Captain Lloyd's observations were made in a part of India ornithologically little known; and it is therefore not impossible that the *Cyornis* he refers to is distinct from either of the species he has associated it with. But for my present purpose it is sufficient to assume that the *Cyornis* of Gujerat does belong to one or other of the above-named species.

There can be little doubt that the birds Captain Lloyd describes are male and female of one and the same species; for Dr. Jerdon's surmise that the female of *C. jerdoni* (= *C. bayumas*, ap. Jerd.) is olive, has not been sustained by subsequent investigation. On the contrary, the females of *C. jerdoni* and *C. tickelliæ* are blue, like the males, but of a much paler shade. The young birds also of both sexes change directly from their rust-spotted plumage to the full blue plumages of the adults. Now if this be so, before Captain Lloyd's conclusions can be adopted, the *Cyornis* male and female of Central India must be compared with the *Cyornis* male and female of Malabar and Ceylon. This comparison examples of both sexes from Candeish, Malabar, and Ceylon in my collection have enabled me to institute. My results are, that from all those localities the females are paler-coloured than the males; and this is also the case in *C. banyumas* (Horsf.) ex Java. The females of Candeish individuals (*C. tickelliæ*) are, above, almost ashy grey, tinged with blue. The lazuline hue of the forehead, supercilium, and shoulder is present, but less intense than in the male. The orange under-surface of the male degenerates into a dull buff in the female. The lores in the female are *white*, whereas in the male they are black. The cheeks and ear-coverts are palpably darker in the male than in the female.

In Malabar and Ceylon birds (*C. jerdoni*) the females are darker and bluer than the Candeish females. They closely resemble Candeish males, from which they can only be distinguished by their *white* lores. Malabar and Ceylon males are, above, very dark blue, below very bright orange, with the lores and chin *black*. It may be that an examination of a larger series than I command may not bear out these facts; but if it does so, it appears to me that we may fairly continue in the belief that *C. jerdoni* and *C. tickelliæ* designate two distinct species, the male of the last wearing the female livery of the first.

Yours &c.,

WALDEN.

Chislehurst, June 1, 1872.

Sir,—In treating of the genus *Hieracidea* in my 'Birds of New Zealand,' I ventured (at page 4) to assert my belief that "there are in reality two distinct species closely resembling each other in plumage, in both the young and adult states, but differing appreciably in size."

My friend Dr. Otto Finsch, of Bremen, has arrived, however, at a different conclusion, and has noticed the subject in a paper on New-Zealand Birds which he has communicated to the 'Journal für Ornithologie' (March 1872, pp. 87, 88). The following is a translation of the passage in question:—

"The following descriptive account is based on a fine series of five specimens, which represent not only both sexes, but the most divergent shades of coloration. I have before me two male birds from Banks's Peninsula, and one male from the west coast of the South Island, all three sent to me by Dr. Haast, and a pair (male and female) received from Captain Hutton, as North-Island specimens. The careful comparison of these examples leaves not the smallest doubt as to the identity of the species. After Dr. Buller, as already stated (*l. c.*), had given proof that the plumage described by Mr. Gould as characteristic of *F. brunnea*, was only the immature dress—a fact established by taking the young birds from the nest*,—Gurney advocated ('Ibis,' 1870, p. 535) the recognition of two species, distinguishing the larger as *F. novæ-zealandiæ*, and the smaller as *F. brunnea*. The measurements adduced by him are valueless in deciding such a question, inasmuch as the determination of the sexes of his specimens is somewhat incomplete or doubtful. It may therefore be inferred, without much hesitation, that the large specimens which Gurney refers to *F. novæ-zealandiæ* are invariably females. Dr. Haast (in litt.) is likewise in favour of two species, the Quail-hawk (*F. brunnea* v. *ferox*), according to his view, being distinguishable from the other by its greater size as well as its different mode of life and the peculiarities of its nesting-habits. But the specimen sent in by him under the latter denomination is, on the contrary, remarkable for its small size. Captain Hutton, in his recent Catalogue, allows but one species, remarking, 'very variable in size; but a large male can be distinguished from a small female by its more slender legs, which are ·6 of an inch in circumference (!) in the male, and ·88 of an inch in the female.' No one will attach any importance whatever to a criterion of this kind, especially in the case of dried skins. Of far more importance are the measurements which Hutton gives, if, as I must suppose, they are taken from positively ascertained males and females, because they confirm the view that the latter are always large birds, and, with the table of measurements compiled by myself, serve to prove that the discrimination of two species differing in size cannot well be maintained."

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* Trans. N. Z. Instit. 1868, vol. i. p. 106.

There is no doubt on my own mind that the marking of the smaller species as "Quail-hawk" was merely a *lapsus calami*; because, in all his correspondence with me on this subject, Dr. Haast has distinguished the larger Falcon by that name, and the smaller one as the "Sparrow-hawk."

With regard to the data furnished in Captain Hutton's Catalogue, I would simply remark that there is no evidence whatever of the sex having been, in a single case, determined by dissection. As I have already pointed out in my history of the species, the fact that a male example of my *H. novæ-zealandiæ* (carefully sexed by Dr. Haast, and exhibiting the testes fully developed) proves to be *actually larger* than the female of *H. brunnea*, is decidedly opposed to the theory of there being only one species.

Mr. Gurney, after a further examination of the specimens in the British Museum, writes me:—"I am sure you are right about the distinctness of the two New-Zealand *Hieracideæ*." In the last letter which I had the pleasure of receiving from Dr. Haast (dated New Zealand, March 10), the following statement occurs:—"Concerning the specific distinctness of the Sparrow-hawk and the Quail-hawk, I may tell you that on my last journey into the interior I got two of the former (*i. e.* the small species). They were male and female; and I secured them at the nest, where they had young ones. The female was a little bigger and lighter than the male bird. Both birds were *full-grown*, and showed at a glance the impossibility of their ever developing into the large and perfectly distinct Quail-hawk."

I am yours &c., Walter L. Buller.

7 Westminster Chambers, Victoria Street, London, S.W.,
June 8, 1872.

Boston, June 13th, 1872.

Dear Sir,—Your interesting monograph of the genus *Geothlypis* came in opportune explanation of some remarkable phenomena in the flight of the *Dendrœca castanea* along the 42nd parallel during the present spring, and in confirmation of the hypothesis by which we accounted for them. So far as I know, up to the present year this bird has been very rare in Massachusetts. Such an indefatigable collector as Mr. Maynard in the course of his life has obtained but one bird. It is not, however, a rare bird in the northern parts of Maine, nor about Lake Superior, abounding there in the breeding-season. Why is this bird so common three or four degrees north of us, yet so rare here? From Northern Illinois and Southern Wisconsin came the same story. The *D. castanea*, unknown there in spring, was this year very common—here between May 25th and 28th, there a little earlier. The explanation was, that this Warbler, which passed north the last of the migrants, made a long flight, without stopping or pausing, and went through here in the night—that this year something deranged its flight, so as to make our latitude the area of its halt before its last northern movement. Flocks were seen containing nearly fifty individuals. One of my young friends shot twelve in a single morning. They were all, too, in full song, though unmated, the males bringing up the rear. It was interesting to see how your statements, as regards some species passing by Mexico and Guatemala in their return to the south, seems to confirm our explanation. In Wisconsin *D. castanea* is not rare in the fall, with us it is so.

Yours very truly,
T. M. Brewer.

Sir,—A small flock of Pallas's Sand-Grouse (*Syrrhaptes paradoxus*) was observed for about a fortnight on the coast of North Northumberland, opposite the Fern Islands, from the last week in May till about the 6th of June. The birds confined themselves to the low flats on the mainland, never being observed on the islands. They were much persecuted, and consequently very wild. About the end of the first week of June they disappeared altogether. Only one of the flock was obtained. This bird was examined by the Rev. C. Thorp, but he did not ascertain the exact particulars of its capture.

I am yours &c.,
H. B. Tristram.

Greatham Vicarage, West Hartlepool,
July 8th, 1872.

Sir,—As every thing relating to the reappearance in Great Britain of Pallas's Sand-Grouse may be said to possess unusual interest, I beg leave to send you the following note from a lady whose pursuits are in many respects closely associated with my own, and who has had the pleasure of seeing at least four specimens of that remarkable bird alive in Ayrshire:—"Girvan, July 2. On Tuesday last (25th June), while walking on the sandy pathway leading to the north shore, I saw a strange bird basking on the hot sand a few yards before me. It got up almost immediately on being disturbed, and after a few hurried steps it darted swiftly over an adjoining wall. A——, who was with me, at once noticed its long pointed wings; and as we were both satisfied that the bird was a stranger, we hastened through the stile near at hand to see what had become of it. To my great surprise and delight I found it had joined three other birds of the same kind on the other side, and that they were Sand-Grouse. The four, after quietly crouching among the tufts of grass, seeing themselves watched, ran wildly about for a few minutes, and then by short flights led us both some distance after them until I had quite time enough to observe their appearance and plumage accurately. We have no doubt as to our recognition of the birds, having repeatedly got so near them. They looked scared and restless when followed, and had evidently arrived but a short time before, as we had never previously seen them, though we walked almost daily in the same direction. A few days afterwards, namely on Saturday the 29th, we saw another (perhaps one of the four) in the same place; but it flew off at once and gave us no opportunity of watching its movements.—E. G."

I may add that the locality where these birds were seen, though somewhat exposed as a place of public resort, is one likely enough to attract them, the path, which is of considerable breadth, being covered deeply with dry sand and stones, which, on hot days especially, form just such a spot as Sand-Grouse would delight to bask in. There are, indeed, many similar places much more retired between the town of Girvan and the ruins of Turnberry Castle, a distance of six miles; and I hope yet to be able to report that they have bred in the district.

I am, Sir,
Your obedient servant,
ROBERT GRAY.

Glasgow, July 11, 1872.

SIR,—I promised to send you an account of the birds seen during my voyage to Pará, as a continuation of the many letters I have sent you on the same subject; I fulfil this promise, if only to record the most desert and bird-forsaken portion of the ocean that it has ever been my lot to traverse.

We left Liverpool in the steamer 'Lisbonneuse' on the 18th of May, and, passing down the Mersey and the English coast, crossed over to Havre. Half a dozen Gulls and a small flock of Grey Plover, making across the channel for the English side, were all the sea-fowl we saw. A Swift and a Swallow flew round the ship; and a female Wheatear came on board.

Between Havre and Lisbon, where we arrived on the 25th, I only saw a few *Thalassidromæ*—*T. leachi* and *T. pelagica*, I think, from their respective sizes.

On Wednesday the 29th, between Madeira and the Canary Islands, lat. 31° 31′ N., long. 16° 20′ W.*, we saw two black Petrels, and one grey one, but so far away as to preclude my even guessing at the species.

On Friday the 31st, lat. 25° 7′ N., long. 21° 52′ W., we first reached the region of flyingfish and *Physalia atlantica*. Now surely, I thought, we shall see some birds; but, no! Saturday, June 1st, lat. 21° 49′ N., long. 24° 22′ W., only brought us two *Thalassidromæ*, and the next day (lat. 15° 13′ N., long. 29° 26′ W.) a grey Petrel in the morning and again at night.

Not a bird did we see after this till the evening of the 5th

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* Our position at noon each day is given.

(lat. 8° 40′ N., long. 34° 31′ W.), when a solitary specimen of my old friend, *Procellaria mollis,* scudded away southward, as if it wished to get away from such a bird-forgotten place.

On June 7th, at 9 A.M., in lat. 2° 50′ N., 30° 50′ W. (nearest land, Paranahyba, 350 miles distant), a pair of Gannets came up from the southward, and, without stopping to fish or even to have a look at us, passed on to the northward.

Next day at 11 A.M. we crossed the line. At 10.30 A.M. (lat. 6′ S., long. 41° 33′ W.) a Ground-Dove flew round the ship, but would not alight, and finally struck off for shore. Capt. Mutton calculated we were at least 180 miles from shore: he told me he heard a Frigate-bird during the night.

Sunday, June 9th.—Land, though not visible, was supposed to be 30 miles a-head at daylight, and a Goatsucker and several *Crotophaga ani* came and pitched in the rigging. The latter were so exhausted that they dropped to the deck, and we caught several; the Goatsucker, a fine large grey fellow, rested for a few moments, and then flew away landward. We were now covered with moths, butterflies, dragonflies, &c. Another Ground-Dove visited us, and Terns and Frigate-birds fished around us.

We presently made the mouth of the Maranaõ River, and came to anchor opposite the town. On landing I soon made the acquaintance of Humming-birds and others; but as all the forms of bird-life are new to me I say nothing of them. We reached Pará on the night of the 19th; and the first object that greeted my eyes in the dim grey morning light next day was a Urubu Vulture, perched on the gable of the opposite house, with extended wings, waiting to catch the first rays of the sun to dry up the night dews from his plumage. They are very abundant here (at Maranaõ I saw none), and act as scavengers.

If you will take the trouble to trace our course on a map, you will see we made a wonderfully straight course to Maranaõ. We picked up the N.E. trades far to the northward of Madeira, and never moved a sail till we approached the land on this side. The absence of bird-life was curious; and Capt. Mutton tells me he never observes it otherwise, and he constantly crosses and recrosses.

I expect to get into a house next week, and shall then begin to pay attention to the birds around me; at present I do not care to kill and examine any, as I have no means of preserving them. I see two kinds of Humming-birds, two Swallows, a Spiny-tailed Swift, and lots of unknown genera in my morning rambles. Farewell.

E. L. Layard.

Pará, June 1872.

Dr. Buller's work on the Birds of New Zealand*, which we mentioned in our last issue (*anteà*, p. 194), has progressed to its second part, three more remaining to finish it.

It is not often that thorough practical knowledge, both in the field and at home, is possessed by the author of a work like the present; but Dr. Buller has studied his subject in both aspects, and the value of his book is clearly enhanced thereby. Moreover, he has set about his task in a way that shows us that he thoroughly appreciates the difficulties surrounding it. His personal acquaintance with the birds themselves has been followed up by a critical and impartial investigation of the writings of previous authors; and, lastly, an independent examination of many of the typical specimens in England has placed him in a position to speak with great precision upon intricate points of synonymy.

The consequences to many of the indigenous birds of New Zealand arising out of its colonization by Europeans seems likely to be so disastrous, that it is high time that authentic histories of them should be put on record before they finally disappear. Dr. Buller's work, therefore, supplies what might have proved a serious omission in ornithological literature. It is not too late to write a full life-history of those New-Zealand birds whose numbers are rapidly diminishing; but a few years hence it is more than probable such a task could not be accomplished. Though the present active causes may be novel, the rapid destruction of the indigenous fauna of New Zealand dates back to far beyond historic times; for though Maori tradition may give an approximately recent time when the Moa still survived, numbers of other similar forms have succumbed whose remains are now found in a semifossilized state, and of these we have not another vestige of record. They, like the Dodo and the Solitaire, seem to have fallen victims to some enemy suddenly introduced into their domain, against which they were powerless to make successful resistance. The remains of these extinct birds have furnished the materials for Prof. Owen's series of exhaustive memoirs on *Dinornis* and its allies. Dr. Buller's will form a fit companion work, and thus provide us with a very complete record of the birds of New Zealand both past and present.

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* A History of the Birds of New Zealand. Parts I. & II. 4to.

We are promised an account of the structural peculiarities of the more remarkable New-Zealand species; this will doubtless be reserved for the last part. In the mean time the influence these observations may have upon the sequence of the species in their arrangement ought to be borne in mind. The retention of *Heteralocha* in the Picariæ and in the family Upupidæ is unfortunate; Mr. Garrod has recently shown, in a paper read before the Zoological Society, that it is certainly a member of the Sturnidæ and a strictly passerine form.

The Annual Report of the Trustees of the Museum of Comparative Zoology at Harvard College for the year 1871 contains some matter which, though more strictly geological, is of great interest to us, in the bearing it has upon the distribution of animal life in the vicinity of Panamá. Dr. G. A. Maack, who accompanied the recent U. S. Darien Exploring Expedition, brought home with him thirty cases of geological, palæontological, and lithological specimens; and in his Report he gives a short abstract of his views of the changes that have taken place in the physical aspect of the isthmus, as suggested by an examination of the material he collected. The point of special interest to us is the indication of two channels between the oceans up to the later Tertiary times, one between the Gulf of San Miguel and the Gulf of Urabá, the other between Panamá and Aspinwall. Dr. Maack also adds that he has evidence to show that the Pacific Cordillera belongs to a later eruptive period, and that of the Atlantic slope was in a state of tranquillity when the waters of the Pacific Ocean covered the present southern watershed. The picture thus suggested presents a chain of islands in Tertiary times in place of the continuous isthmus now existing. Zoology enables us to discern but faintly the old islands that appear once to have existed in this region. These observations of Dr. Maack's, giving them greater definition, will doubtless enable us to read the history of the present geographical distribution of the birds of the isthmus with far greater precision.

Our valued contributor Dr. Coues is about to publish a 'Key to North-American Birds.' The prospectus states that the work will consist of about 300 octavo pages, and will be illustrated by six steel plates and upwards of 250 woodcuts. Its object is to furnish a manual of the birds of North America, in which will be expounded the latest views in ornithology. The introductory part will give a general account of the anatomy and classification of birds, and full explanations of all the terms used in ornithology. A key to the genera and subgenera will follow, in the form of a continuous artificial table, while a synopsis of living and fossil birds will contain concise descriptions of every North-American species known to this time, with characters of the higher groups and remarks relating to forms not found in North America.

Since our last issue, ornithologists have lost two of their most zealous colleagues, both of them having worked through a long series of years up to within a short period of their deaths. Another veteran ornithologist has also passed away whose name is familiar to all working at Indian Birds.

The loss sustained by the death of Mr. GEORGE ROBERT GRAY can only be partly estimated by viewing retrospectively the mass of work he accomplished during the forty-one years he remained in charge of the ornithological collections in the British Museum. Mr. Gray contributed greatly to Griffith's enlarged edition of Cuvier's 'Règne Animal,' and also published several works on entomological subjects, including an illustrated catalogue of the genus *Papilio*. In ornithology, Mr. Gray's first work was the 'List of the Genera of Birds,' which was privately printed in 1840; a second edition (also privately printed) of this work was called for in 1841, to which an Appendix was added in 1842. 1232 divisions were recognized in this last edition with its Appendix.

In 1844 the great work on the Genera of Birds was commenced in conjunction with the late Mr. Mitchell, who undertook the superintendence of the engravings. This standard work, completed in 1849, is too well known to need comment here. In 1855 a third edition of the 'List of Genera and Subgenera of Birds' appeared, in which were incorporated all the additions since the issue of the edition of 1842. Finally, so far as this portion of Mr. Gray's work is concerned, we have the three volumes of the 'Hand-list of Genera and Species of Birds,' the third volume of which was only issued last year. The scope and objects of this final and most laborious undertaking have been fully set forth in these pages, so far as the first two volumes are concerned; the last volume contains the completion of the enumeration of the remaining families, genera, and species, and also a comprehensive index to the whole three volumes, both of generic and specific names. The amount of labour bestowed on this work can be gathered from the statement of Mr. Gray's, that of the 11,000 species of birds which are there recognized, no less than 46,000 references had to be made and entered.

The value of the 'Hand-list' has been at once recognized by working ornithologists; and references are so frequently made to its pages as to show that it is constantly and necessarily referred to by every one working at the subject. Its utility will remain for some time to come, indeed until, as is the fate of all such compilations, another ornithologist shall arise endued with Mr. Gray's perseverance, and give us another 'Hand-list' with the references fully extended. Such a task will not readily be accomplished.

Comparing the early editions of the 'Lists of Genera' and the 'Hand-list,' a fair epitome of the progress of ornithological science from 1840 to the present time might be formed.

Besides the above works, Mr. Gray's Catalogues of the Collections in the British Museum form another series of useful books. These do not comprehend nearly the whole subject, but are restricted to different groups as the requirements of the Collection led Mr. Gray to work them out. The British Museum is fortunate in possessing valuable series of birds from the islands of the Pacific Ocean, and these formed the subject of several useful lists, containing descriptions of many new species, which were published in the 'Proceedings of the Zoological Society.' Some contributions from Mr. Gray's pen will also be found in the pages of this Journal.

Mr. Gray's works are concise to a fault; he has usually given us the bare results of his investigations without detailing the steps by which he arrived at those results—the problem and the answer, without the intermediate operations. In some instances this is sufficient; but, as our science moves, or ought to move, by observation rather than authority, many a weary search might have been spared the working ornithologist had an obscure reference here and there lightened his task. Perhaps few men have written so much in so few words; and this sparing use of words led Mr. Gray to be even backward in describing many a species upon which he simply bestowed a name, leaving it to others to supply the requisite details.

To those studying the ornithological riches of the British Museum Mr. Gray was ever ready to lend efficient help, and his presence will long be missed by those who are occasionally or regularly in the habit of consulting the collection. Mr. Gray died on the 6th of May, after a short illness, being in the 64th year of his age.

By the death of Thomas Caverhill Jerdon, in his 61st year, the science of ornithology has lost one of its most zealous supporters, and at a time too, when, by his return to England after a long sojourn in India, the remainder of a useful life might have been spent in the revision of much valuable work published at different times during his residence abroad. But such was not to be; and a glance a few pages back in the present Number of this Journal shows where his hand was arrested. Mr. Jerdon was the son of Mr. Archibald Jerdon, of Bonjedward, Roxburgh, and was born in 1811. In 1835 he entered the service of the

Hon. East-India Company as Assistant Surgeon in the Presidency of Madras. In 1844 he published his first work on zoology, the 'Illustrations of Indian Ornithology.' Mr. Jerdon's name, however, will be best known to ornithologists by his work on the Birds of India, which was published in 1862. This book has unquestionably proved of incalculable service in promoting the study of ornithology in India. The edition was speedily sold; and we believe that it was the author's intention to have published a second edition, incorporating all the materials that he had since collected, both by his own observations and those of others. The "Supplementary Notes" published in this Journal, and continued down to the end of the *Timaliidæ*, were intended to prepare the way for this second edition.

Mr. Jerdon had special facilities granted him by the Indian Government to enable him to bring out the 'Birds of India,' and in collecting the material for his work he visited the greater part of India, and also visited Assam and Burmah. His knowledge of birds was very great; but he studied them, not by amassing their skins, as is the usual, and perhaps the best, way, but by committing, as it were, their peculiarities to memory, with the aid of copious notes and sketches.

Mr. Jerdon was elected an Honorary Member of our Union in 1864; on his return to England, at his own request he was placed on the list of Ordinary Members. He died on the 12th of June last, after a long and tedious illness originally contracted in Assam, and which not even the change to the climate of Europe enabled him to shake off.

Colonel WILLIAM HENRY SYKES, who died June 16th, in his 83rd year, is better known as a politician and as a statist than for his labours as a zoologist. He was the only son of Samuel Sykes, Esq., of Friezing Hall, Yorkshire, and was born in 1790. In 1804 he entered the Bombay army, and served under Lord Lake at the first siege of Bhurtpore, in 1805. In 1817–18 he commanded a native regiment in the battles of Kirkee and Poona, besides taking part in other military operations. Having retired from the Hon. East-India Company's service in 1837, he was elected one of the Home Directors of that body in 1840, and continued as such until the abolition of the Court of Directors, having been Deputy-Chairman since 1856, and annually elected Chairman of the Shareholders since 1858. Col. Sykes was Lord Rector of Marischal College and of the University of Aberdeen in 1854, and was Chairman of the Society of Arts in 1856; in 1858 he was elected President of the Royal Asiatic Society, and of the Statistical Society of London in 1863. He was first elected M.P. for Aberdeen in April 1857, and was unopposed in all of the subsequent elections. As a legislator he was chiefly known for his advocacy of the claims of Indian officers.

Col. Sykes was the author of several statistical papers, relating mostly to India, and when on service in the Bombay Dukhun, he studied the zoology of that part of the country, and made collections, which are now deposited in the India-House Museum. His catalogues of the Mammalia and of the Birds of the Dukhun, published in the 'Proceedings of the Zoological Society' for 1831–32, are the earliest systematic catalogues which we possess of those classes in any part of India (properly so called); and he subsequently contributed to the 'Transactions of the Zoological Society' papers on the Quails and *Hemipodii* (or *Turnices*) of India, and upon the fishes of the Dukhun, the latter illustrated by figures taken by native artists under his superintendence. In his catalogue of the birds of the Dukhun as many as 56 species are described as new; and of the specific names which he bestowed upon them, we find that 27 are accepted at the present time. The following is a list of them, but with the modern generic appellations:—*Milvus govinda, Circus pallidus, Syrnium indranee, Ptyonoprogne concolor, Cecropis erythropygia, Caprimulgus mahrattensis, Hemipus picatus, Hypsipetes ganeesa, Lanius lahtora, Oriolus kundoo, Malacocercus somervillii, Pomatorhinus horsfieldi, Hippolais rama, Prinia socialis, Drymœca inornata, Motacilla dukhunensis, Pratincola bicolor, Spizalauda deva, Æthopyga vigorsii, Leptocoma minima, Palumbus elphinstonii, Turtur meena, Microperdix erythrorhyncha, Turnix taigoor, Herodias asha, Ardeola grayi, Gallinula* (?) *akool.*

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XL.—*The Humming-birds of the West Indies.* By D. G. Elliot, F.L.S., F.Z.S., &c.

The geographical distribution of the various species of the great Family Trochilidæ inhabiting the different islands of the West Indies never having been separately worked out, I have thought it would be interesting if a list of the Humming-birds now known to be found in that portion of the world were published, with the habitats of each, so far as ascertained, and that, the attention of ornithologists having been directed to the subject, additional light might be thrown upon it by future researches.

For many years we have had a more or less perfect knowledge of the avifauna of certain of the larger islands, although, even of these, but few have had the advantage of the presence of a resident practical ornithologist. Of the large number of the small islands, as regards their fauna, we at present actually know nothing. It is not necessary for me to recapitulate here the extent of our information and the means by which it has been acquired, that having been already accurately done by Mr. Sclater in his paper on the birds of Santa Lucia, published in the Zoological Society's 'Proceedings' for last year; it will suffice for me to say that, of all the West-Indian Islands, we have more or less complete information of the birds inhabiting the following islands only:—Nassau and Long Island of the Bahamas, Cuba, Jamaica, St. Domingo, Porto Rico, St. Thomas, Sombrero, Ste. Croix, St. Bartholomew, Dominica, Martinique, and Santa Lucia. Guadaloupe and St. Vincent possessed resident naturalists; but only fragmentary accounts of their avifauna have ever been published. Here, then, out of the very great number of islands comprising the group known as the West Indies, from only thirteen have ornithologists obtained any information; and that from some of even them is of a most unsatisfactory description. I do not pretend, therefore, in this paper to be able to give the complete geographical distribution of the Trochilidæ of the West Indies, but am merely able to add to what is already known certain other localities regarding which we have of late obtained information. A peculiarity that is remarkable of this group is the fact that certain islands contain species not met with elsewhere, and that but few species of those found in the West Indies are ever seen upon the continent of either North or South America. It will be understood that in speaking of the West Indies, I do not include the islands of Tobago and Trinidad, whose fauna is more that of the neighbouring portion of South America than of the scattered islands lying to the northward.

The two islands of the Bahamas mentioned in this paper contain each a distinct species of *Doricha*, a genus not found in any other of the West Indies, and the only representatives of which are to be met with in Mexico, Guatemala, Costa Rica, and Veragua. Cuba, besides being visited by the migratory *Trochilus colubris*, has two species peculiar to itself, *Calypte helenæ* and *Sporadinus ricordi*, the last a genus only found in the Greater Antilles except Jamaica. This latter island possesses three species, two of which, however, are not found elsewhere; and the third, which is the smallest Humming-bird known, and incapable, it would seem, of any continued flight, is nevertheless an inhabitant of St. Domingo. This would seem to show that at one period those two islands were only one, and that this little species, the *Mel-*

lisuga minima, has been enabled to preserve its specific distinctness in spite of climatic and other influences, although, since the two islands were established as they now are, other and distinct forms of the same family have asserted themselves within their respective limits. Besides the species just named, St. Domingo contains two others which are not found elsewhere. Porto Rico contributes two species to the family, of which it is the only habitat; and this island marks the south-eastern boundary of the genus *Sporadinus.* Of the Virgin Islands, St. Thomas and Ste. Croix are known the best; in fact they are about the only ones of which we have any full information. The former of these contains three species of Trochilidæ, none of which, however, are peculiar to it. It is, however, the northern limit of the genera *Orthorhynchus* and *Eulampis.* Ste. Croix has but two species, which are also inhabitants of other islands. Prof. Sundevall, in his list of the birds of St. Bartholomew, mentions two species of Trochilidæ as indigenous to that island, the *Orthorhynchus exilis* and *Eulampis holosericeus.* From his description of the former, it would seem to be the *O. ornatus* (if the differences pointed out by the describer of that so-called species were not so unsatisfactory as to render it exceedingly difficult to make it out), as he mentions a slight amount of blue on the crest. As to the latter, we might naturally look for it in this island, which is in a direct line with the others inhabited by this species.

Sombrero, a mere naked rock, contains at times the *Eulampis holosericeus,* specimens having been collected by Mr. Julien and sent to Mr. Lawrence. Our next point where any members of this family are known to dwell is the small island of Nevis, which contains two species, one of which, the *Eulampis jugularis,* is also found in Dominica, Martinique, and Santa Lucia, and possibly in the large island of Guadaloupe, although we have no proof of the fact. Dominica possesses three species of Humming-birds, none of which is restricted to it; but between this island and the more southern one of Santa Lucia, appears to be the stronghold of the genus *Eulampis,* as both this island and the one last named contain the two species comprising the genus.

Only two species are known in the large island of Martinique, both of which are also inhabitants of Nevis.

Santa Lucia, of a certain number of whose birds, collected by Mr. J. E. Semper, Dr. Sclater has lately given a list, has three species, all of which are found in Martinique.

Only one species inhabits St. Vincent and Barbadoes, the *Orthorhynchus cristatus*; and it is not found anywhere else.

These are all the islands of the West Indies of which we are aware that any member of the Trochilidæ is an inhabitant.

From the foregoing it will be perceived that, although the same species may be an inhabitant of several islands, yet they are always contiguous to each other, and that no other species of the same genus ever intervenes, as is the case with some genera in the Indian archipelago, where one species inhabiting two islands will have a distinct form of the same genus living on an intermediate one. The members of the genus *Eulampis* appear to have one of the widest ranges (only exceeded by the next), extending from the island of St. Thomas to that of Santa Lucia; and we may naturally expect to find it on the islands lying between these, when their avifauna becomes known. *Orthorhynchus* passes over the greatest extent of latitude, being found from St. Thomas to Barbadoes, one species extending to Dominica, the second to Santa Lucia, and the third to the limit of its dispersion. The remaining genera *Lampornis, Aithurus, Doricha, Trochilus, Calypte, Mellisuga,* and *Sporadinus* are either (as is the case with the first, third, and fourth) casual or outlying representatives of continental divisions of the family, or peculiar forms of most restricted habitats, and which have sprung into existence, in all probability, after this extent of land had been broken up into the dispersed groups by which it is now known to us. The annexed Table (p. 357) will give a more correct idea of the geographical distribution of the various species.

In the following list I have made whatever corrections have appeared necessary in synonymy or nomenclature, and referred to their respective places any species which I have considered established upon doubtful or insufficient grounds.

LAMPORNIS VIRIDIS.

Trochilus viridis, Aud. et Vieill. Ois. Dor. vol. i. p. 34, pl. xv. (1802).

Lampornis viridis, Gould, Mon. Troch. vol. ii. pl. lxxviii.; Tayl. Ibis, 1864, p. 169.

Hab. Porto Rico (*Taylor*).

This species seems to be entirely restricted to the Island of Porto Rico, where it is by no means common; and among collections of Trochilidæ it is one of the species generally absent.

LAMPORNIS DOMINICUS.

Trochilus dominicus, Linn. Syst. Nat. p. 191 (1766), ♀; Gmel. Syst. Nat. p. 489 (1788).

Trochilus margaritaceus, Gmel. Syst. Nat. p. 490 (1788), ♀.

Trochilus aurulentus, Vieill. Ois. Dor. pl. xii. (1802).

Polytmus margaritaceus, Gray, Gen. of Birds. vol. i. p. 108, sp. 13.

Lampornis margaritaceus, Bon. Consp. Gen. Av. i. p. 72, sp. 5.

Lampornis aurulentus, Gould, Mon. Troch. vol. ii. pl. lxxix.; Cass. Proc. Acad. Phil. 1860, p. 377.

Lampornis virginalis, Gould, Mon. Troch. vol. ii. pl. lxxx.

Hab. St. Thomas (*Riise, Cassin*), St. Domingo, Porto Rico (*Bryant*).

This is undoubtedly the species described by Linnæus, in his twelfth edition, as *Trochilus dominicus*; for, although it was a female upon which he founded the species, the characters enumerated by him are too clear, particularly those of the tail, to permit the supposition that some other bird was intended. Besides, the account given by Brisson, whom Linnæus followed, is very full, and shows plainly that the female of the species generally called *Lampornis aurulentus* was well known to that author; and it is described by him in his 'Ornithology,' vol. iii. p. 673. There is no other species which possesses a similarly coloured tail inhabiting the West-Indian Islands; and it would appear that there is less doubt about the rightful appellation of this species than there is about many of this family mentioned by the earlier writers.

I have said there is no other species of Humming-bird inhabiting the West Indies which may be taken for this. It will be noticed that I have placed among the synonyms Mr. Gould's *Lampornis virginalis,* as I have not been able to satisfy myself that it is entitled to specific distinction. The colour of the median tail-feathers, mentioned by Mr. Gould as one great point of difference, does not hold good, as I have seen specimens from St. Thomas with them as dark as can be seen in any example from St. Domingo; and the size of the birds from the two islands is not appreciably different.

Dr. Bryant obtained the species in Porto Rico.

LAMPORNIS MANGO.

Mango-bird, Albin, Birds, vol. iii. p. 45, t. 49. fig. 6.

Trochilus mango, Linn. Syst. Nat. p. 191, sp. 10 (1766); Gmel. Syst. Nat. p. 491 (1788).

Trochilus porphyrurus, Shaw, Nat. Misc. vol. ix. pl. 333.

Lampornis mango, Gosse, Birds of Jamaica, p. 88 (1847).

Lampornis porphyrurus, Gould, Mon. Troch. vol. ii. pl. lxxxi.

Hab. Jamaica.

This is the species usually known as *L. porphyrurus* of Shaw. Albin, who first gave a description of it, as quoted above, in 1740, states that in the year 1701, when he was *in Jamaica,* he captured, in the dusk of the evening, one of these birds and her nest; and as the species generally called *Lampornis mango* is never found in Jamaica, there can be no doubt to which bird Albin referred. Linnæus, in 1766, in his 'Systema Naturæ,' p. 191, gives *Lampornis mango,* with a short diagnosis that may well apply to this species, and quotes as the first of his synonyms the *Mellivora mango* of Albin, which is the bird usually mentioned by authors as *L. porphyrurus.* Whether or not it is correct to consider the synonym first given as the type of the species an author intends to indicate when writing out his list, is in this case of little or no moment; for as Linnæus thus quotes the species named *M. mango* by Albin under this appellation, it naturally takes precedence of *porphyrurus* bestowed upon the bird by Shaw many years afterwards. Brisson, in his description of *Polytmus jamaicensis,* evidently had the bird from the mainland, the *L. mango* of authors, before him. Linnæus did not discriminate the difference between the two birds of Albin and Brisson, but confounded them in his synonymy, which Gmelin tried to rectify by making two classes under the same specific name. The term *mango*, however, is evidently the one applied first to the species from Jamaica; and if the law of priority has any force, the *porphyrurus* of Shaw must sink into a synonym, and the present species be henceforth known as *Lampornis mango*, and the one usually called by that name will bear that of *Lampornis violicauda*, it being the *Trochilus violicauda* of Boddaert, *L. albus* of Gmelin.

LAMPORNIS CALOSOMA.

Chrysolampis chlorolæmus, Elliot, Ann. & Mag. Nat. Hist. 4th ser. vi. p. 346 (1870).

Hab. ——?

I described this species in the 'Annals & Magazine of Natural History' as above cited, under the name of *Chrysolampis chlorolæmus*, placing it in that genus after consulting with Mr. Gould, who considered it belonged there, on account of the feathers protruding forward upon the bill, somewhat like those in *C. moschitus*. But after further investigation, as suggested by Messrs. Salvin and Sclater, Ibis, 1871, p. 429, I am satisfied that its proper position is among the species of the present genus, and comes nearest to the *Lampornis dominicus*; the specific name of *chlorolæmus*, having been already bestowed on a bird of a very closely allied genus, cannot well be retained without danger of creating confusion; and I therefore propose to substitute for it the appellation of *calosoma*, so that the species will henceforth be known as *Lampornis calosoma*.

The habitat of this species is unknown; but it is not unlikely that it may be a native of some one of the West-Indian Islands of whose ornithology we at present know nothing. If this supposition should prove to be correct, a fine field still remains unexplored for some enterprising naturalist; for among the members of the genus *Lampornis* the present species is one of the very handsomest, and doubtless many equally fine birds in this and other families are still unknown to science, to reward the researches of the explorer. I give a short description of the species, in order to bring it more prominently before ornithologists, in hopes that other specimens may be procured, the type in my collection remaining as yet unique.

Top of head and neck light metallic green, in some lights purplish; a black band across the back, rest of upper parts green; tail fiery copper-colour, feathers margined with blackish purple; throat brilliant emerald-green; underparts black, flanks white; tail-coverts chestnut, basal portions black. Length 4 inches, bill ·55, wing 2·4, tail 1·3.

EULAMPIS JUGULARIS.

Trochilus jugularis, Linn. Syst. Nat. p. 190, sp. 7 (1766); Gmel. Syst. Nat. p. 489, sp. 7 (1788).

Trochilus auratus, Gmel. Syst. Nat. p. 487, sp. 29 (1788).

Trochilus bancrofti, Lath. Ind. Orn. vol. i. p. 317.

Eulampis jugularis, Gould, Mon. Troch. vol. ii. pl. lxxxii.

Hab. Island of Nevis (*Gould*), Martinique, Dominica (*Taylor*), Santa Lucia (*Semper*).

This genus comprises, according to my views, two species, the present and the one following. The one now under consideration is among the most beautiful of all Humming-birds; and although it was formerly common in collections, having been received chiefly from Martinique by the French naturalists, it has become of late years rather scarce. There does not seem to be any difficulty in the synonymy, the species being too conspicuous and well marked to be easily mistaken for any other.

EULAMPIS HOLOSERICEUS.

Trochilus holosericeus, Linn. Syst. Nat. p. 191, sp. 11 (1766).

Eulampis holosericeus, Gould, Mon. Troch. vol. ii. pl. lxxxiii.; Cassin, Proc. Phil. Acad. 1860, p. 377.

Eulampis chlorolæmus, Gould, Mon. Troch. vol. ii. pl. lxxxiv.

Eulampis longirostris, Gould, Introd. Mon. Troch. p. 69, sp. 95.

Hab. St. Thomas, Ste. Croix (*Newton*), Martinique, Dominica (*Taylor*), Santa Lucia (*Semper*).

E. holosericeus has been known for many years to ornithologists; and there are few collections that do not contain numerous examples. Mr. Gould, in his well-known work on this family, has named a bird supposed to come from the island of Nevis *E. chlorolæmus*. With every desire to perceive any specific difference it might exhibit, and although I have examined carefully, by the kindness of Mr. Gould, the specimens in his collection, I am unable to consider that there is more than one species of this form. The difference in the shade of colour is what may be seen in many species of Humming-birds, notably in such a one as *Calothorax cyanopogon,* where the luminous throat-mark in individuals varies greatly, and cannot be deemed a specific character.

Mr. Gould has also described two specimens in his collection as *E. longirostris.* These were kindly shown to Mr. Salvin and myself; and we compared them carefully with examples of *E. holosericeus.* They are unfortunately in very bad condition, and the frontal feathers of the best one are wanting; allowing for this, we ascertained that the bill was but very little longer than those of the common species. Not thinking this a sufficient character to establish the species, I have placed *E. longirostris* among the synonyms of *E. holosericeus.*

AITHURUS POLYTMUS.

Trochilus polytmus, Linn. Syst. Nat. p. 189, sp. 4 (1766).

Ornismya cephalatra, Less. Ois.-mouch. p. 78, pl. xvii.

Trochilus maria, Hill, Ann. & Mag. Nat. Hist. 2nd. ser. iii. p. 258 (1849).

Aithurus polytmus, Gould, Mon. Troch. vol. ii. pl. xcviii.

"*Aithurus fuliginosus,* Hill," March, Proc. Ac. Phil. 1863, p. 285.

Hab. Jamaica.

This handsome bird, conspicuous for the lengthened plumes of the lateral tail-feathers, is one of the commonest species of the island of Jamaica, where alone it is found. The female is a plain little bird, with a white breast, the long tail-feathers being absent.

DORICHA EVELYNÆ.

Trochilus evelynæ, Bourc. Proc. Zool. Soc. 1847, p. 44.

Trochilus bahamensis, Bryant, Proc. Nat.-Hist. Soc. Boston, vol. vii. p. 106 (1859).

Doricha evelynæ, Gould, Mon. Troch. vol. iii. pl. clvi.

Hab. Nassau and New Providence, Bahamas (*Bryant*).

This species still remains very rare in collections, only the dried bodies of the birds having been received; good skins have never yet been sent to Europe.

DORICHA LYRURA.

Doricha lyrura, Gould, Ann. & Mag. Nat. Hist. 4th ser. vol. iv. p. 112 (1869).

Hab. Long Island, Bahamas (*Bryant*).

This beautiful species, closely allied to the *D. evelynæ,* is one of the last novelties procured by the late Dr. Bryant during his sojourn in the West Indies. It differs chiefly in the remarkable shape of the tail-feathers, which, when they are spread, partake of a lyre-like form; hence its specific name. It has only been obtained by Dr. Bryant; and how many islands it may inhabit, or whether it is restricted to the one given above, is unknown.

TROCHILUS COLUBRIS.

Trochilus colubris, Linn. Syst. Nat. p. 191, sp. 12 (1766); Gould, Mon. Troch. vol. iii. pl. cxxxi., et auct.

Hab. Cuba (*Gundl.*), Bermuda (*Gould*).

The Bermudas, Bahamas, and the island of Cuba appear to be the only ones visited by this little wanderer, which in its annual migrations is found from the plains of the Arctic regions to those of Central America.

MELLISUGA MINIMA.

Trochilus minima, Linn. Syst. Nat. vol. i. p. 193; Gmel. Syst. Nat. vol. i. p. 500.

Trochilus vieilloti, Shaw, Gen. Zool. vol. viii. p. 347.

Onismya catharinæ, Sallé, Rev. Zool. 1849, p. 498.

Mellisuga humilis, Gosse, Birds of Jamaica, p. 127 (1847).

Mellisuga minima, Sallé, Proc. Zool. Soc. 1857, p. 233; Gould, Mon. Troch. vol. iii. pl. cxxxiii.

Hab. Jamaica (*Gosse, March*), St. Domingo (*Sallé*).

This plain little bird, if not *the* smallest, is certainly one of the most diminutive of the Trochilidæ, and is an inhabitant of the two large islands of Jamaica and St. Domingo, where alone it has been found. It is the only species known of the genus *Mellisuga*; and neither sex possesses any conspicuous metallic colouring.

CALYPTE HELENÆ.

Orthorhynchus helenæ, Lembeye, Aves de la Isla de Cuba, p. 70, pl. x. fig. 2 (1850).

Calypte helenæ, Gould, Mon. Troch. vol. iii. pl. cxxxvi.

Orthorhynchus boothi, Gundl. J. f. Orn. 1856, p. 99.

Hab. Cuba.

This beautiful species has never been met with elsewhere than in the island of Cuba, and it does not appear to be very abundant even there.

ORTHORHYNCHUS CRISTATUS.

Trochilus cristatus, Linn. Syst. Nat. i. p. 192; Schomb. Hist. Barb. p. 681.

Trochilus pileatus, Lath. Ind. Orn. vol. i. p. 318.

Orthorhynchus cristatus, Gould, Mon. Trochil. vol. iv. pl. ccv.

Hab. Barbadoes (*Schomburgk*), St. Vincent (*Guilding*).

This handsome species has as yet only been met with on the islands of St. Vincent and Barbadoes—a distinct species (or at all events a race of the same form) inhabiting the island of Santa Lucia, a little to the northward.

ORTHORHYNCHUS EXILIS.

Trochilus exilis, Gmel. Syst. Nat. vol. i. p. 484 (1788).

Orthorhynchus exilis, Gould, Mon. Troch. vol. iv. pl. ccvii.

Hab. Dominica (*Taylor*), Nevis, St. Thomas, Ste. Croix (*Newton*).

This species appears to have, so far as our knowledge enables us to say, a much wider range than its allies. It has been discovered upon the four islands enumerated above; but as there are many others lying between Dominica and Nevis (the two nearest together of those named), of the ornithic fauna of which we are in perfect ignorance, it is natural to suppose it may be found also on some of them, especially as the great islands of Guadaloupe and Martinique are among those that intervene. Up to the present time the species is only known from the four islands given.

ORTHORHYNCHUS ORNATUS.

L'oiseau-mouche huppé, Less. Hist. Nat. des Ois.-mouch. p. 113, pls. xxxi. & xxxii.?

Orthorhynchus ornatus, Gould, Mon. Troch. vol. iv. pl. ccvi.; Scl. Proc. Zool. Soc. 1871, p. 272.

Hab. Martinique, Santa Lucia (*Semper*).

This species, if it is really entitled to such a distinction, is found exactly between *O. cristatus* of Barbadoes and St. Vincent, and *O. exilis* of the Virgin Islands and Nevis. It has perhaps a little more blue upon the crest; but if the locality is wanting, it is not an easy matter to separate specimens from *O. exilis*, to which the present bird bears a very close resemblance.

SPORADINUS RICORDI.

Orthorhynchus ricordi, De la Sagra, Hist. Nat. de la Isla de Cuba.

Ornismya parzudaki, Less. Rev. Zool. 1838, p. 315.

Hylocharis ricordi, Gray, Gen. Birds, vol. i. p. 114, sp. 23.

Sporadinus ricordi, Gould, Mon. Troch. vol. v. pl. cccxlviii.

Hab. Cuba.

The island of Cuba possesses at least two species of Humming-birds not met with elsewhere, the *Calypte helenæ* and the one now under consideration. It is rather common in its native place, and has never been known to leave the island.

SPORADINUS ELEGANS.

Trochilus elegans, Vieill. Ois. Dor. pl. xiv. p. 32 (1802).

Trochilus swainsoni, Jard. Nat. Lib. Humm. Birds, vol. ii. p. 58.

Hylocharis elegans, Gray, Gen. Birds, p. 114, sp. 18.

Sporadinus elegans, Gould, Mon. Troch. vol. v. pl. cccxlvii.

Hab. St. Domingo.

Very strange is the fact that so many of the West-Indian islands appear to possess certain species of this family that are not met with elsewhere. St. Domingo is another proof of this as it is the only spot where the present species has been discovered; and we may be safe in believing that it never leaves that island; for so conspicuous a bird would not likely be overlooked by any ornithologist visiting the neighbouring groups in pursuit of their feathered inhabitants.

SPORADINUS MAUGÆI.

Trochilus maugæus, Vieill. Ois. Dor. vol. i. pp. 77, 79, 80, pls. xxxvii., xxxviii.; id. Dict. d'Hist. Nat. vol. vii. p. 368.

Ornismya maugæus, Less. Hist. Nat. Ois.-mouch. p. 194, sp. 68, 69.

Sporadinus maugæi, Gould, Mon. Troch. vol. v. pl. cccxlix.

Hab. Porto Rico.

One of the very rarest species of Trochilidæ. It has never yet been seen elsewhere than in the island of Porto Rico, where I have no reasons for supposing it to be otherwise than abundant.

	Nassau.	Long Island.	Cuba.	Jamaica.	St. Domingo.	Porto Rico.	St. Thomas.	Ste. Croix.	Sombrero.	St. Bartholomew.	Nevis.	Dominica.	Martinique.	Santa Lucia.	St. Vincent.	Barbadoes.
Lampornis viridis						*										
—— dominicus					*	*	*									
—— mango				*												
—— calosoma																
Eulampis jugularis											*	*	*	*		
—— holosericeus							*	*	*	*		*	*	*		
Aithurus polytmus				*												
Doricha evelynæ	*															
—— lyrura		*														
Trochilus colubris			*													
Mellisuga minima				*	*											
Calypte helenæ			*													
Orthorhynchus cristatus															*	*
—— exilis							*	*		*	*	*				
—— ornatus													*	*		
Sporadinus ricordi			*													
—— elegans					*											
—— maugæi						*										

XLI.—*Note on some of the Cranial Peculiarities of the Woodpeckers.* By A. H. Garrod, B.A., Prosector to the Zoological Society.

Considering the method adopted by the Woodpeckers for obtaining their food, it is hardly surprising that they possess cranial features peculiar to themselves; for it is scarcely conceivable that the head, the most delicately constructed portion of the body, should be employed as a powerful hammer or axe whose stroke can be heard at a considerable distance, without some modifications in structure which would assist in increasing its efficiency for the purpose.

Accordingly, we find that the bones are thicker and stronger than in most birds, and there is only a slight movement possible of the upper jaw on the head proper. The interorbital septum is thick and nearly complete, supporting a median protrusion on the front of the skull which is so considerable as to throw the free extremities of the hyoid bones to one side or the other, thus causing the skull to be slightly unsymmetrical. Further, the axis of the upper beak is peculiarly low, being continuous with that of the basicranium; and this results from the lowness in position of the points of junction of the superior processes of the præmaxillæ with the frontal region of the skull, which renders the angle between the beak and skull less obtuse than is generally the case. In those birds in which there is considerable hinge-motion of the upper beak on the head, as in the Parrots, the basisphenoid rostrum is generally long and of uniform thickness for some distance, and the conjoined palatine bones, with the vomer between them and the pterygoids articulated behind, form a longitudinal flange along the upper surface of the median junction, which runs backwards and forwards on the rail formed by the basisphenoid rostrum during the movements of the beak. In the Woodpeckers any considerable articulation of this kind would reduce the value of the head as an axe; consequently the posterior ends of the palatine bones are not well developed, and they scarcely unite in the middle line, while further forwards the vomer is not seen in the maxillo-palatine region, and these latter bones also are only slightly developed. A similar tendency among Passeriniform birds to the reduction of the vomer in front is found, combined with a complete absence of the maxillo-palatines, in *Menura* *.

Professor Huxley, in his paper "On the Classification of Birds" †, has entered into considerable detail respecting the Woodpecker's palate, and from not finding a vomer present, and observing the peculiar longitudinal bony spicula connected with the inner edges of the palatine bones, opposite to and behind the fenestræ they assist to enclose, is led to think that these spicula are the rudiments of the vomer, which has not ossified across the middle line. But in carefully prepared skulls they look much more like the inner edges of the imperfectly ossified palatines, as they are connected completely with them at both ends. Further, in most of the specimens of *Gecinus viridis* and its allies that I have had the opportunity of examining, I have found a median bone, situated between the palatines, and supported like a vomer on the basisphenoid rostrum, at the anterior end of its broader portion. This bone is small, and shaped very much like a spear-head with the tip directed forwards, whilst posteriorly it gradually becomes fibrous and tends to bifurcate, but not in the ossified part. It does not extend backwards quite so far as the pterygo-palatine articulation. The accompanying sketch will enable its shape and position to be more clearly perceived.

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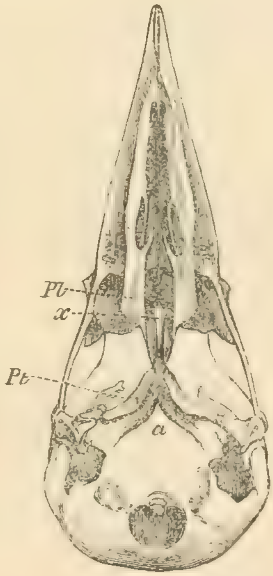
* Since the above has been in print I find that the maxillo-palatines are not absent in *Menura*, but are long and slender, differing somewhat from the ordinary passerine type, but separate from one another and from the vomer.

† Proc. Zool. Soc. 1867, pp. 415–472.



Palate of *Gecinus viridis*, showing the vomer *x*, between the palatines *Pl*. The pterygoids are marked *Pt*, and the spine of the basicranium *a*.

Though this bone is situated rather further back than the vomer in most birds, yet it is found similarly placed in some, as in *Megalæma*, which by the way has the anterior termination of its vomer truncated in front, and produced forwards at the corners, as in the Crow—though in the former bird these processes articulate, and do not anchylose with the posterior ends of the palatine plates of the maxillo-palatines.

On cutting the palatine bones of *Gecinus* from the anterior part of the skull, and disarticulating them from the pterygoids, the bone which I suppose to be the vomer comes away with the palatines, as would be expected, were such the case.

The absence of truncation in the vomer of the Woodpeckers tends by itself to remove them from a close relationship with the Passerine birds; but, as I before remarked, this peculiarity may depend on their special habits. There is, however, in the shape of the pterygoid bones a character which tends to bring them together again. In Passerine birds the pterygoids extend forwards for a considerable distance in front of the point of contact or articulation with the palatines. These anterior processes are vertically expanded and in contact with the rostrum, and probably sometimes with the crura of the vomer; they are situated above (that is, deeper than) the posterior internal angles of the palatines, and therefore are not seen while looking at the surface of the palate, but only on a side view. In the Woodpeckers and other birds related to them these processes are also present, but they are absent in most others, though the Anserine birds possess them. In the Woodpeckers, also, there is a very peculiar anteriorly directed process arising from the upper part of the middle of the body of the pterygoid bone, which is quite independent of the one above described.

XLII.—*On a Collection of Birds recently made by* Mr. A. H. Everett *in Northern Borneo.* By ARTHUR, Viscount WALDEN, P.Z.S., F.R.S.

(Plate XII.)

HAVING lately had an opportunity of examining a small collection of birds obtained in Northern Borneo by Mr. A. H. Everett, it has occurred to me that a list of the species it included might form an acceptable addition to our knowledge of the avifauna of that island. Hitherto the Bornean collections sent to London by Mr. Everett have been dispersed before being catalogued, and the valuable materials he had contributed to the formation of a complete list of North-Bornean birds were thus rendered unavailable. This is the more to be regretted, as most of his specimens have labels attached which give the origin and sex of each example, and other useful information. These notes, whenever they occur, are here introduced within inverted commas.

Our knowledge of Bornean ornithology dates from comparatively recent times, and is not extensive. In 1855 Messrs. Motley and Dillwyn* published the first part of a work on Bornean zoology, which, unfortunately, was not continued. The ornithological portion of the subject is well treated. In 1863 Mr. Sclater† published some observations on the birds of South-eastern Borneo by Mr. Motley, to which he added some valuable original notes. This paper comprises a list of 134 species. These two publications, I believe, embrace all that has been written of a connected character on the Bornean avifauna. Besides, we have nothing but scattered notices of new species by various authors, from Temminck to Salvadori. Indeed it is curious that no Bornean birds were described or enumerated by any of the older authors. Until the island was visited by the Dutch collectors in the time of Temminck, it is doubtful whether a single Bornean bird reached the hands of an ornithologist.

The objects of especial interest contained in Mr. Everett's last collection are *Argusianus grayi, Pityriasis gymnocephalus,* of which rare species a considerable number of individuals were obtained, and *Setornis criniger,* Lesson. Until we possess complete catalogues of the Malaccan, Sumatran, Javan, and Philippine birds, and all their allied forms have been compared, it will be premature to comment on their geographical distribution. For the present all that we are warranted in saying is that the Bornean ornis exhibits a near relationship to the Sumatran and Malaccan, less to the Javan, and still less to the Philippine; while its few ornithic affinities with the neighbouring island of Celebes it has in common with the more distant Sunda islands.

PALÆORNIS LONGICAUDATUS (Bodd.), Tabl. Pl. Enl. p. 53 (1783), ex D'Aubenton; O. Finsch, Papag. ii. p. 77.

Perruche de Malac, D'Aubent. Pl. Enl. 887.

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* Contributions to the Natural History of Labuan, &c. Part 1. London, July 2, 1855.

† Proc. Zool. Soc. 1863, p. 206.

Palæornis malaccensis, Vigors; Motley & Dillwyn, Labuan, p. 26.

Palæornis affinis, Gould, B. of Asia, pt. x. pl. —, av. juv. (1858), fide Blyth, Ibis, 1865, p. 42.

Sarawak (*Everett*); Banjarmassing (*Motley*); Sumatra, Malacca (*mus. nostr.*); Bangka (*Sal. Müller*); Nias Isl. (*v. Rosenberg*).

In a Sumatran example the middle rectrices measure 10½ inches.

HIERAX CÆRULESCENS (Linn.), S. N. i. p. 125, no. 9 (1766), ex Edwards.

Little Black and Orange-coloured Indian Hawk, Edwards, Illustr. pl. 108, "Bengal."

Hierax malayensis, Strickl. Ann. Nat. Hist. xiii. p. 33, "Malay countries" (1844).

"Marup, ♀."

Does not differ from Sumatran and Malaccan examples. No rufous about the head. The wing measures 3¾ inches. The writing on the label is indistinct, but seems to read "iris light brown." The Javan bird has yet to be compared.

SPILORNIS BACHA (Daudin), Traité, ii. p. 43 (1800), ex Levaillant.

Le Bacha, Levaillant, Ois. d'Afr. i. p. 68, pl. 15, "South Africa"!

Spilornis cheela (Daud.), apud Wallace, Ibis, 1868, p. 15, "Borneo, small race of the Indian species," nec Daudin.

Falco cheela, Daudin, Traité, ii. p. 44 (1800), to which species Mr. Wallace (*l. c.*) referred the small Bornean *Spilornis,* was founded on Latham's *Cheela Falcon,* Syn. Suppl. p. 33,= *Falco cheela,* Lath. Ind. Orn. i. p. 14. no. 14 (1790), described as from India, where it is known "by the name of *Cheela*; size large, and of a very stout make; length 2 feet or more" (Lath. *l. c.*).

Falco bacha, Daudin (*l. c.*), is the title Daudin gave to *Le Bacha,* Levaillant (*l. c.*). Levaillant's type is generally supposed to have come from Java; and his plate agrees well with the Javan bird. *Falco bido,* Horsf. Tr. Linn. Soc. xiii. p. 137, is a synonym (*conf.* Sundev. Kritisk, Ois. d'Afr. p. 25). This Bornean species appears to be smaller than either of these two Eagles, being about equal in size to *S. rufipectus,* Gould. The adult plumes that have appeared on the thighs, under the shoulders, and on the abdomen and flanks are much paler than in my Malaccan, Javan, and Cingalese examples of *S. bacha.* I am inclined to the opinion that it belongs to a distinct and undescribed species; yet, until a fully adult individual can be examined, I propose to regard these Bornean birds as representing *S. bacha* in immature plumage. If it eventually prove to be distinct, I venture to suggest for it the title of *Spilornis pallidus.*

Two examples are sent by Mr. Everett, one without a label. One marked "Jambusan, September, ♀," is of a young bird in transition plumage. The feathers of the interscapular region are pale rusty fulvous, with a broad subterminal dark brown band, which is fringed with albescent fulvous. On the lower back and uropygium the feathers are pale brown, terminated with deeper brown and fringed with albescent-fulvous. The feathers of the head, including the crest, which is considerably developed, are white at their insertion, then tawny, with a dark brown subterminal drop with a terminal fringe, much decomposed, of albescent-fulvous. Below each eye a bold pure white mark; a narrow black line over the eye, joining the black ear-coverts and cheeks; chin and throat immaculate tawny. The remainder of the under surface tawny. Some of the pectoral plumes with pale brown central triangular markings; lower down some with faint central streaks of pale rusty-brown. Abdominal and ventral plumes, the thigh and tail-coverts, and the flanks with numerous cross bars of dilute ferruginous. Axillaries barred with bright pale ferruginous. The primaries are brown above, with black outer webs, deepening towards the tips, which are white, and one or two slanting black bars crossing both webs. Underneath the quills are white, the black bands and ends showing through as pure or mottled pale brown. The rectrices at their base are brown; then a band of very dark brown an inch and a half deep, followed by a still broader pale band of albescent brown; then a narrow subterminal very dark brown band, edged by a very narrow border of light brown, and finally fringed with albescent.

The second example, which (from its smaller dimensions) is probably of a male, has put on many of its adult feathers. The chin and throat white, with a few feathers brown-centred. The remainder of the under surface of the peculiar pale earthy brown colour found in *S. cheela*. The breast unspotted, but the abdominal, ventral, and flank feathers, the axillaries, under wing-coverts, thigh, and under tail-coverts more or less spotted with pure white; the axillaries have their ground-colour more ruddy. The under surface of the quills as in the Jambusan individual; above the black portion of the quills as in that example, but the paler brown replaced by pale earthy brown mottled with albescent. The banding of the rectrices is different and very irregular. The subterminal dark brown band both individuals possess in common; the pale band above is narrow, irregular, and mottled. Above this, again, the dark brown band occupies less space, and is broken into by mottled pale brown and albescent, above which, again, are indications of a third dark brown band. The plumes of the head and crest are mostly pure white at the base, terminated with a broad jet-black band. The white mark under the eye persists; but the cheeks and ear-coverts are cinereous, with a jet-black shaft to each feather. The back and wing-coverts are of a much paler brown.

	Longitudo			
	Alæ.	Caudæ.	Tarsi.	
Spilornis bacha . .	15·25	10	3·87	Adult, East Java.
„ „	14·50	10	3·50	„ Java.
„ „	15·50	10	3·50	Nearly adult, Ceylon.
„ „	15·50	10	3·50	„ „
„ „	14·50	9·80	3·50	„ „
„ „	14·50	9·80	3·50	„ „
„ „	14·75	11	3·25	Adult, Malacca*.
„ „	13·25	10	3·25	♀ juv., Jambusan.
„ „	12·62	8·75	3·12	♂ (?) juv., Sarawak (?).

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* The examples noted as adult have the crest pure white and black. The others have the black portion of the crest-plumes edged with ferruginous brown. The caudal banding of one Ceylon individual agrees with the banding in the Javan and Malaccan. In the three other Ceylon individuals *three* dark brown bands are more or less indicated.

Phodilus badius (Horsf.), Tr. Linn. Soc. xiii. p. 139, "Java" (1820); Zool. Res. Java, pl. —; Temm. Pl. Col. 318, "Java"; Schlegel, Mus. Pays-Bas, *Striges*, p. 23.

No locality given; probably from neighbourhood of Sarawak. Example sent undistinguishable from Malaccan and Burman (Tonghoo) individuals. Sumatran individuals are considered to belong to the same species (Schlegel, *l. c.*).

Ninox borneensis (Bp.), Mus. Lugd. Consp. i. p. 41. no. 23, "Malaiasia, Borneo" (1850); Schlegel, Mus. Pays-Bas, *Striges*, p. 25.

"Marup."

Although also given by Bonaparte from Malaiasia, the only examples in the Leyden Museum were from Borneo. Of a paler and ruddier brown than Malaccan individuals I have examined. Underneath, the broader centres are almost bright rufous, and occupy more of each feather, less white being thus apparent than in *N. scutellatus* (Raffl.) = *N. malayensis*, Eyton, or in any other of the allied forms. Dimensions less than those of the Ceylon, South-Indian, Assam, Burman, or Malaccan species. Four caudal bands are present.

	Longitudo		
	Alæ.	Caudæ.	
Ninox hirsutus	7·75	5	Ceylon, five caudal bands.
,, ,,	7·75	4·75	,, ,, ,,
,, ,,	7·75	4·75	Coorg, ,, ,,
,, ,,	8	5	,, ,, ,,
,, ,,	8·50	5·50	Assam, ,, ,,
,, ,,	8 50	5·50	Tonghoo, ,, ,,
,, *scutellatus*	7·50	4·75	Malacca, four caudal bands.
,, ,,	7·50	4·75	,, ,, ,,
,, *borneensis*	7·12	4·50	Marup, ,, ,,

Meiglyptes tristis (Horsf.), Tr. Linn. Soc. xiii. p. 177, "Java" (1820).

Picus poicilophos, Temm. Pl. Col. 197. fig. 1, ♂, "Java" (1823).

"Marup, July, ♂, iris crimson; Simunjon, ♂, iris crimson; Marup, ♀."

The example from Simunjon is in the plumage of *M. tristis* verus, ap. Malh. (Monogr. ii. p. 10); and a Banjarmassing specimen displays the same characters. The first, although marked a male, wants the usual red cheek-stripes; the South-Bornean bird displays only traces of red feathers on the cheeks. Malaccan examples frequently exhibit one or other of the peculiarities insisted upon by Malherbe as being characteristic of *M. tristis* (Horsf.), notably the dark breast and under surface generally. All the individuals with the under surface coloured fulvous, with brown cross bands, Malherbe has separated under the title of *P. grammithorax* (*tom. cit.* p. 13). That author, however, admits that it is impossible to indicate with precision the separate localities they inhabit. The Marup specimens are in the plumage of *P. grammithorax*, and they do not differ from some Malaccan and Sumatran examples. The probabilities are that the dark-breasted individuals, *M. tristis* (Horsf.), are birds not arrived at maturity, and that when in adult plumage they assume the garb which induced Malherbe to regard them as belonging to a distinct species, *P. grammithorax**.

CENTROCOCCYX EURYCERCUS (A. Hay), J. A. S. B. xiv. p. 551, "Malacca" (1845).

Cuculus bubutus, Horsf. apud Raffles, Tr. Linn. Soc. xiii. p. 286, "Sumatra."

Centropus borneensis, Bp. Consp. Vol. Zygod. p. 5 (1854).

"Marup, ♀, iris crimson."

Prince Bonaparte (*l. c.*) separated the large Bornean Crow Pheasant; but this example agrees so closely with Malaccan and Sumatran individuals that I cannot recognize its specific distinction. *C. eurycercus* can always be distinguished from the continental *C. rufipennis*, Illiger, by its larger size, by the tail of the full-plumaged bird (?) being blue and not green, and by the *interscapulary region of the back being coloured like the wings.* Even in young birds with striated plumage, this part of the back will be found to have some rufous feathers. I have not been able to determine with any certainty whether the rectrices pass from green to blue, or blue to green ; but in one stage they are certainly blue, which never occurs in *C. rufipennis*.

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* This view is supported by the fact, above mentioned, that the Simunjon male wants the usual red cheek-stripes. Mr. Everett's notes of the sexes throughout his collection appear to have been made with scrupulous accuracy.

If, on comparison, the Javan *Centrococcyx* (*C. bubutus*, Horsf. Tr. Linn. Soc. xiii. p. 180, sp. 2) prove to belong to this species, Horsfield's title will have precedence. Both Moore and Cabanis unite it with the continental form ; but, judging from Horsfield's plate and description (Zool. Res., *C. philippensis*, var. *javanica*), it is the Malayan species or else nearly allied to it.

CENTROCOCCYX JAVANENSIS (Dumont de Ste.-Croix), Dict. Sc. Nat. xi. p. 144, "Java" (1818) ; Walden, Tr. Zool. Soc. viii. p. 59.

"Jambusan, ♀, iris brown."

In almost perfect plumage. Identical with Javan, Malaccan, and Celebean examples.

PENTHOCERYX PRAVATUS (Horsf.), Tr. Linn. Soc. xiii. p. 179, "Java" (1820).

Cuculus rufovittatus, Drapiez, Dict. Class. d'Hist. Nat. iv. p. 568, "Java" (1823).

Cuculus fasciolatus, Sal. Müller, Verh. Nat. Gesch. Nederl. Ov. Bez. Land- en Volk. p. 177, note, sp. 4, "Java and Sumatra" (1839–44).

"Sabu, ♀, iris warm brown, legs pale bluish lead ; Busan, ♀, iris yellow, October."

The species which inhabits Malacca, Sumatra, Java, and Borneo is considerably smaller than *P. sonnerati* (Lath.) of India and Ceylon.

	Longitudo Alæ.	Caudæ.	
Penthoceryx sonnerati	4·88	5·12	Candeish.
,, ,,	4·75	4·88	Ceylon.
,, ,,	4·75	4·62	Malabar.
,, ,,	4·88	5·0	Maunbhoom.
Penthoceryx pravatus	4·25	4·37	Java.
,, ,,	4·25	4·50	Malacca.
,, ,, ♂	3·88	4·0	Sarawak.
,, ,, ♀	4·0	4·0	Busan.
,, ,, ♀	4·0	4·12	Sabu.

SURNICULUS LUGUBRIS (Horsf.), Tr. Linn. Soc. xiii. p. 179, adult, "Java" (1820); Zool. Res. Java, pl. —.

Cuculus albopunctatus, Drapiez, Dict. Class. d'Hist. Nat. iv. p. 570, "Java" (1823), av. juv.

Pseudornis dicruroides, Hodgs. J. A. S. B. 1839, p. 136, pl. —, "Nipaul."

"Marup, iris brown."

Himalayan, Ceylon, Malaccan, and Javan individuals do not differ; and this Marup example also agrees with them.

	Longitudo		
	Alæ.	Caudæ.	
Surniculus lugubris	5·75	6	Java, full black plumage.
,, ,,	4·82	5·50	Java, full black plumage.
,, ,,	4·75	5·37	Malacca, changing from brown to black plumage; no spots.
,, ,,	5·37	5·88	Valley of Nipaul, full black plumage.
,, ,,	5·75	6·0	Darjeeling, full black plumage.
,, ,,	4·88	5·88	Ceylon, full black plumage.
,, ,,	4·88	5·75	Ceylon, spotted plumage.
,, ,,	4·62	5	Marup, spotted plumage.

PELARGOPSIS LEUCOCEPHALA (Gm.), S. N. i. p. 456 (1788); Sharpe, Mon. Alced. pl. 59.

"Marup, ♂, iris brown, bill and legs scarlet."

CEYX SHARPII, Salvadori, Atti Ac. Sc. Torino, 1869, p. 463, pl. —, "Sarawak;" Sharpe, Mon. Alced. pl. 63.

"Marup, ♂, iris brown, bills and legs pale red."

A single example of a beautiful *Ceyx* in Mr. Everett's collection seems referable to this species, although it does not quite agree with Count Salvadori's diagnosis, nor with that given by Mr. Sharpe. It has the wings of *Ceyx tridactyla,* and it also possesses the large deep-blue spot on the sides of the head of that species. It is certainly not *C. dillwynni,* Sharpe, with the type of which I have compared it.

ALCEDO ASIATICA, Swains. Zool. Illustr. 1st ser. i. pl. 50, "some part of India" (1820–21); Sharpe, Mon. Alced. pl. 75.

"Marup, ♂, iris brown, feet claret-coloured; Marup, ♂, August, iris brown, bill black-brown, feet coral-red."

Lyncornis temmincki, Gould, Icones Av. pl. 6, "Borneo" (1838)*.

Caprimulgus pulcher, A. Hay, Madr. Journ. L. Sc. xiii. p. 161, "Malacca" (1844).

"Marup, ♀, July, iris brown."

Identical with Malaccan examples.

Calyptomena viridis, Raffles, Tr. Linn. Soc. xiii. p. 295, ♂, "Sumatra" (1821); Horsf. Zool. Res. Java†, pl. —, ♂.

Rupicola viridis, Temm. Pl. Col. 216 (August 20, 1823), "Sumatra."

Calyptomena rafflesia, Swains. An. in Menag. p. 296. no. 49, pl. 48. f. *a*, ♂ adult (18—?), ex Raffles.

Calyptomena caudacuta, Swains. *tom. cit.* no. 50, pl. 48. fig. b, ♂ juv. vel ♀, "India."

"Marup, ♂, iris brown, July, not pairing."

Malaccan and Bornean examples do not differ.

Corydon sumatranus (Raffles), Tr. Linn. Soc. xiii. p. 303, "Sumatra" (1821).

Eurylaimus corydon, Temm. Pl. Col. 297, "Sumatra" (1824).

Corydon temmincki, Lesson, Man. d'Orn. i. p. 177, ex Temminck (1828).

"Busan, ♂, iris light brown, bill and legs purplish."

A young bird changing into adult plumage. Prevailing colour above dingy dark olive-brown.

Malaccan and Sumatran examples exhibit no distinctive characters.

Eurylaimus javanicus, Horsf. Tr. Linn. Soc. xiii. p. 170, "Java" (1820); Zool. Res. Java, pl. —.

Eurylaimus horsfieldi, Temm. Pl. Col. 130, ♂ ad., 131, av. juv., "Java" (1823).

"Marup, ♂, iris yellow; Jambusan, ♂ (*av. juv.*), iris yellow, bill blue, legs claret; ♀ (*av. juv.*), iris yellow, bill blue, legs claret."

Identical with Malaccan examples. The young birds are fairly represented in Temminck's plates. The young of both sexes are in similar plumage. The bill is black in the dried specimen.

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* Mr. Gould (*l. c.*) quotes P. Z. S. pt. vi. 1838; but I have failed to find the reference.

† But not known to occur in Java.

EURYLAIMUS OCHROMELAS, Raffles, Tr. Linn. Soc. xiii. p. 297, "Singapore and Sumatra" (1821).

Eurylaimus cucullatus, Temm. Pl. Col. 261, "Sumatra" (1824).

Eurylaimus rafflesi, Less. Compl. Buff. ii. p. 433, ex Raffles (1840).

"Simunjon, ♀, iris yellowish, bill blue, legs purplish; ♀ (*av. juv.*), iris yellow, bill blue, legs pinkish."

The young bird has little or no black on the throat, which, with the upper breast, is white; remainder of under surface yellow, a few new vinous feathers appearing on the breast. Black collar wanting. Frontal plumes yellow.

A Pinang example in perfect plumage has the black collar interrupted on the breast. According to Sir Stamford Raffles this is peculiar to the female; and in the adult authentic female examples from Simunjon the collar is likewise interrupted, being almost absent.

CYMBIRHYNCHUS MACRORHYNCHUS (Gm.), S. N. i. p. 446 (1788), ex Latham.

Great-billed Tody, Lath. Synop. i. p. 664. no. 14, pl. 30, "Leverian Museum," descr. orig.

Todus nasutus, Lath. Ind. Orn. i. p. 268. no. 14, ex Lath. (1790); Gen. Hist. iv. p. 94, pl. 65; Temm. Pl. Col. 154, "îles de la Sonde."

Eurylaimus lemniscatus, Raffl. Tr. Linn. Soc. xiii. p. 296, "Sumatra" (1821).

Platyrhynchus ornatus, Desm. Hist. Nat. Tang. (Hist. Nat. Platyrinques) livr. iv. ex Lath. (1805).

Erolla nasica, Less. Tr. p. 260, "Sumatra" (1831).

Examples from Malacca, Banjarmassing, and Sarawak do not differ.

The sternum alluded to by Mr. Sclater (*anteà,* p. 178) and figured (p. 179. fig. 3) belongs to a Bornean example of this species and not to *Eurylaimus javanicus.*

Pityriasis gymnocephalus (Temm.), Pl. Col. 572, "Borneo" (1835).

"Marup, ♀, iris dark brown, legs pinkish white."

Colour of soft parts in the male is not noted. Females seem to differ from males by having most of the abdominal and ventral feathers edged with carmine. The wing of this remarkable species is long and powerful. The first quill is about two thirds of the length of the second, which is three fourths of an inch shorter than the third; the third is equal to the fifth, the fourth being a little the longest. The tail is short and even. The first quill has a round white mark at its insertion, on the inner web. In the next six quills this white mark expands and forms a broad white bar on the inner webs. It is wanting on the secondaries. One, a middle rectrix of a female example, is crossed by a dingy, obscure, carmine mark. In all the other examples the rectrices are uniform dark slate-black.

Longitudo

	Alæ.	Caudæ.	Tarsi.	Rostr.
♂,	5·88	3·50	1·37	1·50
♀,	6·	3·50	1·37	1·50

Artamus leucorhynchus (Linn.), Mantissa Plant. p. 524, "Manilla" (1771); Walden, Tr. Zool. Soc. viii. p. 67.

"Marup, ♂, iris brown, bill bluish white, legs lead-grey."

This locality must be added to those given by me (*l. c.*).

Graucalus concretus, Hartlaub, J. für. Orn. 1864, p. 445, ♀ *vel* ♂ *juv.*, "Borneo."

Graucalus fasciatus (Vieill.), apud Hartlaub, *tom. cit.* p. 444, nec Vieillot.

An example of a female or of a young male *Graucalus*, but unfortunately without a label, formed part of Mr. Everett's collection. It is not to be distinguished from Malaccan individuals collected by the late Mr. Maingay, and noted by him as being females, excepting that the wing is slightly shorter and the secondaries are not so broadly margined with white. It agrees completely with Dr. Hartlaub's diagnosis (*l. c.*) of *G. concretus*. Dr. Hartlaub (*tom. cit.*) described two distinct species from Borneo: the one he referred to *G. fasciatus*, Vieill., a title given to Daubenton's 629th plate, and within whose range he includes Sumatra; on the other he bestowed the above title, restrict- its range to Borneo. Without questioning the fact that two distinct species of fasciated Cuckoo-Shrikes may inhabit Borneo, only one is known in the Malay peninsula, which we may by analogy infer to be the same as the Sumatran; and this species is certainly not *Coracina fasciata*, Vieillot. Indeed the Malaccan *Graucalus* has never had a distinctive title bestowed upon it, it having been confounded with the bird figured by Daubenton, pl. 629, a Philippine species and totally distinct. I adopt, therefore, for the Bornean and Malaccan *Graucalus*, Dr. Hartlaub's title.

PERICROCOTUS ARDENS, Boie; Bp. Consp. Av. i. p. 357, "Sumatra" (1850).

"Marup, ♂, iris brown, July, pairing."

It is with some doubt that I identify the example sent with *P. ardens*, Boie; for the Indo-Malayan members of the genus have never been brought together and satisfactorily identified. This Marup bird agrees in all respects with Sumatran and Malaccan individuals. In colouring it closely resembles *P. speciosus* (Lath.), of which it is nothing but a miniature form. Wing 3·18 inches, tail 3·37. *Muscicipa miniata*, Temm. Pl. Col. 156. fig. 1, "Java," if not the same species, may be the Javan representative form. The bird represented (*l. c.* fig. 2) must be another species.

PERICROCOTUS MINUTUS, Strickl. Contrib. Orn. 1849, p. 94. no. 22, ♂, pl. —, "Borneo."

"Marup, ♀, iris brown, July, not breeding."

Streak over the eye but not extending beyond, cheeks, forehead, chin, throat, all the under surface of the body, under shoulder-coverts, and underside of the wing-band deep golden. Sides of the head pale ash. Head and back slate-grey; tips of the rump-feathers orange-red. Upper tail-coverts bright orange-red. Alar bar above orange-yellow. Middle pair of rectrices brown, lateral orange-red. Wing 2·80 inches, tail 2·95.

The style of plumage of this example is certainly never met with in *P. peregrinus*, which it barely exceeds in dimensions;

and with little doubt I refer it to Mr. Strickland's species, which, although closely resembling the preceding species, *P. ardens*, apud nos, is described by him as not exceeding *P. peregrinus* in size. *P. igneus*, Blyth, J. A. S. B. 1846, p. 309, may possibly be this form; for it likewise is described as being barely larger than *P. peregrinus*; but it may be equal to *P. ardens*, apud nos. If identical with this Bornean bird, Mr. Blyth's title will have precedence (*conf.* Blyth, Ibis, 1866, p. 369, and *op. cit.* 1867, p. 184).

PHILENTOMA VELATUM (Temm.), Pl. Col. 334, ♂, "Timor and Java" (1825).

Monacha cæsia, Lesson, Rev. Zool. 1839, p. 167, ♀, "Sumatra."

Muscicapa pectoralis, A. Hay, Madr. Journ. L. & Sc. xiii. p. 261, ♂, "Malacca" (1844).

Philentoma unicolor, Blyth, Ibis, 1865, p. 46, ♀, "Borneo." Vicinity of Sarawak?

One male in the collection. Sumatran, Malaccan, and Bornean examples do not differ.

With doubt I follow Mr. Moore and the late Mr. G. R. Gray, and place this Flycatcher in *Philentoma*, Eyton.

TCHITREA AFFINIS, A. Hay, J. A. S. B. 1846, p. 292, "Malacca."

"Foot of Matang, ♀, iris white, legs and bill cobalt; Marup, ♂, iris brown."

The female is in dingy rufous plumage with a grey throat. The male in pure white, the black of the shafts of the central pair of rectrices extending to their tips. In a white Sarawak male (Wallace) the terminal half of the shafts are white, as in *T. paradisi*, excepting within half an inch of the end, where they are black. In a Pinang example a similar variation is observable. One from Sumatra has the entire shaft black.

CYORNIS ELEGANS (Temm.), Pl. Col. 596. f. 2, "Sumatra" (1836).

"Marup, in August, ♂, iris chocolate, legs lead-colour."

I provisionally identify a single example obtained of a *Cyornis* with the Sumatran species, not having had an opportunity of making a comparison.

Chin, the entire throat, forehead, superciliary stripes, upper tail-coverts and shoulders of the wing bright cobalt blue. A patch of pale rufous on the breast. Flanks very dilute rufous, Lower breast, belly, and under tail-coverts pure white. Lores and under surface of rectrices black. Remainder of plumage rich indigo-blue. Of the same type as *Cyornis rubeculoides* (Vigors), but much more brilliantly coloured. Mr. Blyth (Ibis, 1865, p. 44) considers *Muscicapa elegans* = *Phœnicura rubeculoides*, Vigors; if this be so, the Bornean *Cyornis* is a distinct species. I very much question the correctness of Mr. Blyth's identification; for Temminck describes the Sumatran *Cyornis* as having the chin and cheeks, along with the forehead and shoulders, of a bright azure-blue, a feature not to be found in the continental species.

ERYTHROPITTA GRANATINA (Temm.), Pl. Col. 506, "Pontianak, Borneo" (1830); Schlegel, Vog. Nederl. Ind. *Pitta*, p. 35, pl. 5. fig. 3, ♂, adult, "Banjarmassing;" Mus. Pays-Bas, *Pitta*, p. 5.

Brachyurus granatinus (Temm.), Elliot, Ibis, 1870, p. 417, *partim*, fig. 4.

"Marup, ♂, iris brown, April."

I concur with Mr. Gould in regarding the Bornean bird as specifically distinct from that of Malacca, *E. coccinea* (Eyton). The following points of difference appear to be constant in *Erythropitta granatina*:—The black on the forehead recedes more from the base of the bill and occupies more space, thus diminishing the extent of crimson. The shade of crimson is much darker, being deep cherry-red and not vermilion. The blue stripes on the sides of the head and the blue wing-coverts are distinctly paler; on the other hand the back is very much darker, and glossed with a totally different shade of purple. The red of the abdominal region and under tail-coverts is conspicuously deeper.

MELANOPITTA MUELLERI (Bp.), Consp. Av. i. p. 256, "Celebes," *errore* (1850), ex Müll. & Schlegel.

Pitta atricapilla, Müll. & Schlegel, nec auct., Verh. Nat.

Gesch. Nederl. Ind. *Zool.* p. 19. no. 19, "Borneo;" Schlegel, Vog. Nederl. Ind. *Pittæ,* p. 31. no. 4, pl. 2. fig. 2, "Borneo méridional;" Mus. Pays-Bas, *Pitta,* p. 3.

"Marup, ♂, iris brown; ♀, iris brown."

Both examples in adult plumage. In the male the first four primaries are tipped with black, the fifth slightly; the next five quills are pure white to their extremities. In the female examples all the quills are terminated with black, on the first quill the white forming but a narrow bar.

TIMALIA NIGRICOLLIS, Temm. Pl. Col. 594. fig. 2, "Borneo" (1836); Hartl. Rev. Zool. 1846, p. 4.

Timalia erythronota, Blyth, J. A. S. B. 1842, p. 793, "Singapore."

Brachypteryx nigrogularis, Eyton, Ann. Nat. Hist. 1845, p. 228, "Malay peninsula."

"Marup, ♂, iris crimson; Matang, ♂, iris crimson, bill and legs black."

Agrees with examples from Sumatra, Malacca and Pinang.

MACRONUS PTILOSUS, Jard. & Selby, Ill. Orn. pl. 150 (1835).

Timalia trichorros, Temm. Pl. Col. 594. fig. 1, "Sumatra, Borneo" (1836).

"Busan, ♂, Marup, ♀, iris brown."

Sexes alike. Bornean examples are somewhat larger than those which inhabit Sumatra and Malacca, and are perhaps somewhat lighter in shade.

MIXORNIS BORNENSIS, Bonap. Consp. i. p. 217, "Borneo" (1850); Hombr. & Jacquin. Voy. Pôle Sud, iii. p. 90, pl. 19. fig. 2, "Banjarmassing;" Sclater, P. Z. S. 1863, p. 215. no. 64, "Banjarmassing."

"Marup, ♂, iris Naples yellow; ♀, bill lead-brown, iris Naples yellow, legs red-brown; August, not breeding."

This *Mixornis* is well figured (*l. c.*). The Marup examples have the ground-colour of the lower breast and belly of a more lively yellow than a Banjarmassing individual. I am acquainted with and have compared five distinct species of this genus, of which the following are the titles:—

1. *Motacilla rubicapilla,* Tickell, J. A. S. B. 1833, p. 576, "Jungles of Borabhúm and Dholbhúm."

Iora chloris, Hodgs. MS.; Blyth, J. A. S. B. 1842, p. 794; *op. cit.* 1844, p. 380, "Lower hills of Nipaul."

Mixornis ruficeps, Hodgs. P. Z. S. 1845, p. 23.

Mixornis rubicapilla (Tickell); Jerd. B. Ind. ii. p. 23; Walden, P. Z. S. 1866, p. 547, "Salween valley."

Nipaul and Bootan Himalayas, Central India (*Jerdon*); Assam (*Godwin-Austen*); Tenasserim (*Beavan*).

2. *Motacilla gularis,* Raffles, Linn. Tr. xiii. p. 312, "Sumatra" (1821); Walden, *l. c.*

Timalia gularis (Raffles); Horsf. Zool. Res. in Java, pl. —, "Sumatra."

Mixornis sumatrana, Bp. Consp. i. p. 217, "Sumatra" (1850).

Timalia similis, Temm., Mus. Lugd.; Blyth, Ibis, 1865, p. 47, "Sumatra."

Mixornis similis, Blyth, G. R. Gray, Hand-list, no. 4723, "Sumatra."

Mixornis sumatrana, G. R. Gray, *tom. cit.* no. 4720, "Sumatra."

Prinia pileata, Blyth, J. A. S. B. 1842, p. 204, "Malay peninsula."

Sumatra (*Wallace*); Malacca (*mus. nostr.*).

3. *Mixornis javanica,* Cab.* Mus. Hein. i. p. 77, "Java" (1850).

Myiothera gularis, Temm. Pl. Col. 442. fig. 1, "Java and Sumatra."

Mixornis gularis (Horsf.); Bp. Consp. i. p. 217, "Java," nec Horsf.; G. R. Gray, H.-list, no. 4717, "Java," nec Horsf., nec Hombr. & Jacquin. Voy. Pôle Sud, pl. 19. fig. 2.

Java (*Wallace*).

4. *Mixornis bornensis,* Bp. *ut supra.*

5. *Timalia flavicollis,* Müller; Bp. *l. c.* "Java" (1850). A true *Mixornis.*

Java (*Wallace*).

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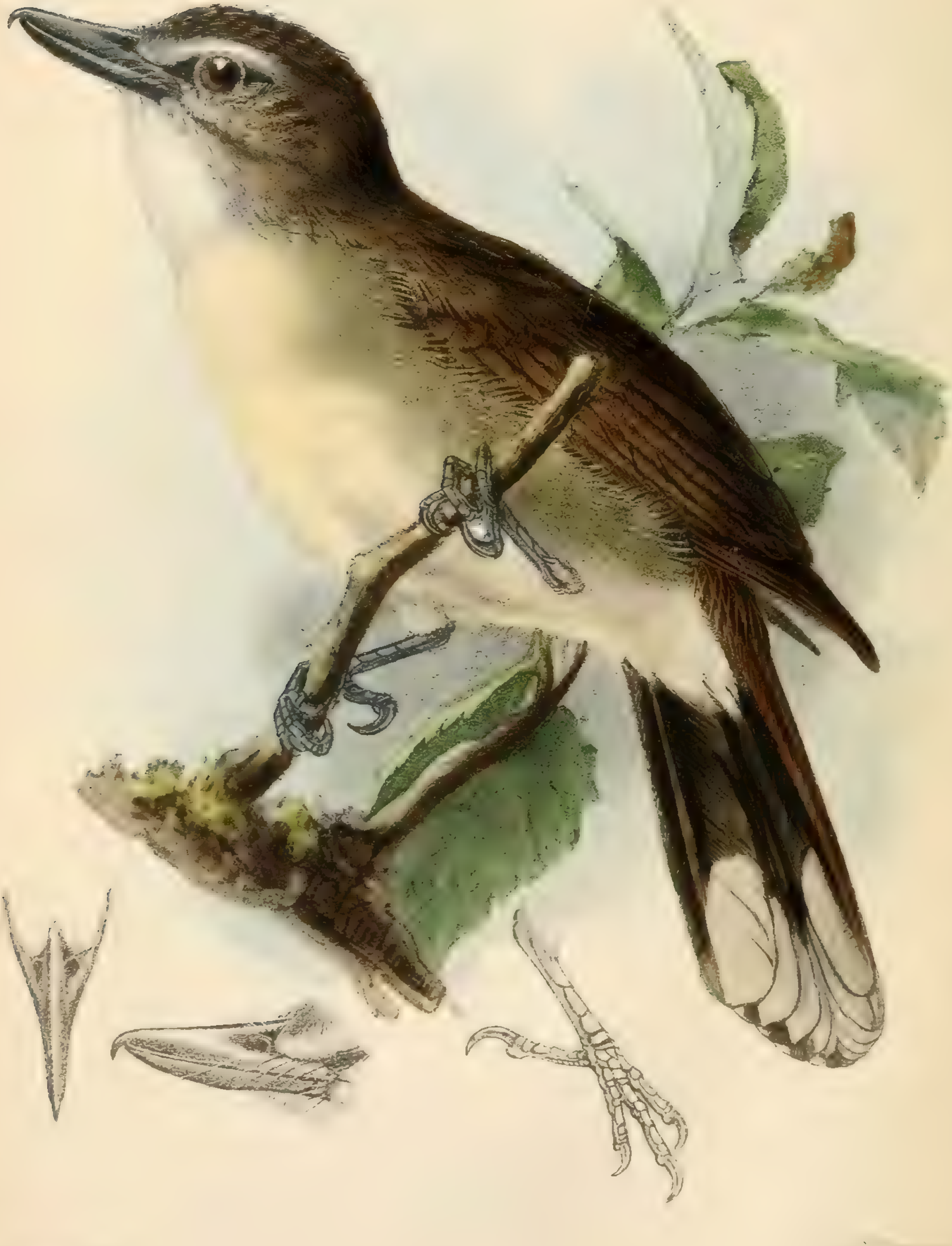
* *Conf.* Bp. Coll. Delattre, p. 41, note. Notwithstanding the ungenerous observation contained in the reference, Dr. Cabanis is undoubtedly right. He was the first to recognize the fact that Horsfield (Zool. Res.) figured the Sumatran bird.



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ORIOLUS XANTHONOTUS, Horsf. Tr. Linn. Soc. xiii. p. 152, ♂, "Java" (1820); Zool. Res. Java, pl. —.

Oriolus leucogaster, Reinwardt; Temm. Pl. Col. 214, ♂, ♀, "Java" (1823).

Oriolus castanopterus, Blyth, J. A. S. B. p. 1842, 796, ♀, "Singapore."

An old male; precise locality not mentioned. Does not differ from Malaccan and Banjarmassing individuals.

SETORNIS CRINIGER, Lesson. (Plate XII.)

Rev. Zool. 1839, p. 167, "Sumatra;" nec *Brachypus criniger,* A. Hay, J. A. S. B. xiv. p. 377 (1845); nec *Setornis* (?) *criniger,* A. Hay, Blyth, Cat. Cal. Mus. p. 212, no. 1283.

"Sabu, ♂, iris chocolate."

Above fuliginous brown, deepest on the head, and tinged with olive on the back and sides of neck. Quills brown edged with ferruginous. Inner edges of quills white seen from above, albescent from below. Rectrices graduated, brown; all but the middle pair, with the terminal part of the inner web, pure white above for about three quarters of an inch. Lores and a streak passing above the eye, lower part of the cheeks, chin, throat, and upper part of breast white faintly tinted with pale iron-grey. A small space before the eye, and extending behind the eye, dark brown or black. A pale grey space below the eye. Lower breast pale straw-colour, some of the feathers being tipped with pale ashy brown. Remainder of lower surface and under tail-coverts pale straw-colour. Flanks pale fuliginous-brown. Under shoulder-coverts mixed pale yellow and pale brown. Bill horn-brown, shading to pale grey or bluish grey at the tip of maxilla and throughout most of the mandible. Feet very pale pink or flesh-colour. A bunch of fine black hairs springs from the nape. The bill is long, much compressed towards the tip: the maxilla has the culmen perfectly straight; at the tip it bends suddenly downwards, forming a formidable hook and showing a distinct notch. The commissure is also quite straight, and the maxilla rather overlaps the mandible. The gonys is curved. The rictus is armed with powerful and long bristles. The tarsus is short, and the toes are weak. The first quill is about two-thirds of the length of the second; this is half an inch shorter than the third, which, again, is nearly as much shorter than the fourth. The fourth quill is longest and slightly exceeds the fifth, the sixth being somewhat longer than the third.

An example, labelled a female, obtained by Mr. Wallace at Sarawak, and now in his collection, has the under plumage hardly tinted with yellow, the under tail-coverts nearly pure white, and the breast-feathers more decidedly brown. It exhibits also a distinct black stripe below each cheek.

Another example (♀ *fide* Wallace), also obtained at Sarawak, and now in my collection, differs by having the upper plumage of a lighter shade of brown, the under plumage more or less pure white, and the bill shorter.

	Longitudo				
	Rostr.	Alæ.	Caudæ.	Tarsi.	
♂	0·88	3·75	3·75	0·62	Sabu.
♀	0·75	3·62	3·62	0·62	Sarawak (mus. nostr.).
♀	0·80	3·75	..	0·62	„ (mus. Wall.).

Notwithstanding the difference of colouring exhibited by these three individuals, I do not doubt that they belong to the same species. Generally they agree so well with the description given by Lesson (*l. c.*) of *S. criniger* that, unless the Bornean is a representative form, it will in all likelihood prove to be the same as that hitherto unidentified Sumatran species. I suspect that this is also the type of *Trichophoropsis*, Bp., *T. typus*, Bp., Compt. Rend. vol. xxxviii. p. 59, "Borneo" (1854).

Brachypus criniger, A. Hay (*l. c.*) ex Malacca, is a totally distinct species. It is a small bird (wing 2½ inches), with the bill of an *Alcippe*. Underneath it is bright yellow, above ferruginous olive. The rectrices are pale ferruginous, with obscure pale yellow tips. Mr. Blyth has identified *Criniger sericea*, Müller, *Mus. Lugd.*, with this species (Ibis, 1865, p. 48); Mr. Wallace obtained it at Sarawak. It is probably *Trichophoropsis viridis*, Bp. (*l. c.*), "Borneo" (1854), and *Trichophorus minutus*, Hartl. J. für O. 1853, p. 156, "Malacca" (*conf.* O. Finsch, J. für O. 1867, p. 19).

ALCURUS OCHROCEPHALUS (Gm.), S. N. i. p. 821 (1788), ex Brown.

Yellow-crowned Thrush, Brown, Illustr. p. 50, pl. 22, "Ceylon (*errore*) and Java."

Trichophorus crispiceps, Blyth, J. A. S. B. pp. 186, 204, "Tenasserim" (1842).

Ceylonese Stare, Lath. Syn. ii. p. 11. no. 11, "Ceylon."

Sturnus zeylanicus, Gm. *tom. cit.* p. 804. no. 11 (1788), ex Lath.

Trachycomus ochrocephalus (Gm.), Cab. Mus. Hein. i. p. 109.

Examples from Java, Sumatra, Malacca, Sarawak, and Tenasserim are identical.

The description of the Ceylonese Stare given by Latham agrees well with this species, although, of course, the Ceylon habitat is erroneous.

Its affinities seem to be with *Alcurus striatus*, Blyth; and therefore I do not adopt the genus *Trachycomus*, formed for it and three other forms of *Pycnonotus* by Dr. Cabanis (*l. c.*).

KITTACINCLA SUAVIS (Sclater), P. Z. S. 1861, p. 185, "Borneo meridionalis," *op. cit.* 1863, p. 216.

"Marup, ♂."

This example possesses the three outer pairs of rectrices pure white from their insertion, the fourth pair being only partially black on the inner web. The average length of the wing in Ceylon, Maunbhoom, Hainan, Malaccan, and Sumatran *K. macroura* is 3·63 inches, in Javan 3·87; in this Bornean representative form it is fully 4 inches. It is interesting to find that the North Bornean bird possesses the distinctive characters first noticed in that from South-east Borneo.

PRIONOCHILUS MACULATUS (Temm.), Pl. Col. 600. fig. 3, ♂ "Borneo" (1836).

"Simunjon, ♂, iris dark red, bill and legs dark brown."

Malaccan examples are identical.

PRIONOCHILUS XANTHOPYGIUS, Salvadori, Atti Ac. Sc. Torino, 1868, p. 416, pl. —. fig. 1 ♂, 2 ♀, "Borneo."

"Jambusan, ♂."

A good species, peculiar to Borneo, differing from *P. percussus* (Temm.) by having the uropygium bright yellow.

DICÆUM CHRYSORRHŒUM, Temm. Pl. Col. 478. fig. 1, ♂, "Java," 1829.

Dicæum chrysochlore, Blyth, J. A. S. B. 1842, p. 1009, ♀, "Arracan."

"Marup, ♂, iris red, bill black."

Undistinguishable from Malaccan and Tonghoo examples. In the Hand-list, no. 1417, *D. croceoventre*, Vigors, is erroneously given as a synonym of this species.

DICÆUM TRIGONOSTIGMA (Scop.), Del. Fl. Faun. Insubr. ii. p. 91. no. 64 (1786), ex Sonnerat; Walden, P. Z. S. 1866, p. 545, "Moulmein."

Le grimpereau siffleur de la Chine, Sonnerat, Voy. aux Indes, ii. p. 210, pl. 117. fig. 2, ♂.

Certhia cantillans, Lath. Ind. Orn. i. p. 299, no. 61 (1790) ex Sonnerat; Temm. Pl. Col. 478. f. 3, ♂, "China (! ?), Java."

Dicæum croceoventre, Vigors, Memoir of Raffles, p. 673, ♂, "Sumatra" (1830).

"Marup, iris brown."

Compared with six adult males from Malacca and one from Pinang, this Bornean individual differs by having the entire throat much darker grey, and the breast deeper orange.

ÆTHOPYGA SIPARAJA (Raffles), Tr. Linn. Soc. xiii. p. 299, ♂, adult, "Sumatra" (1821); Walden, Ibis, 1870, p. 33; *op. cit.* 1871, p. 166.

Æthopyga eupogon, Cab. Mus. Hein. i. p. 103, note, "Malacca, Borneo" (1850).

"Marup, ♂, July, pairing; iris and legs brown. Marup, ♀, August; bill and iris brown; legs pale red."

In no respect different from Malaccan and Pinang examples. The Sumatran species may differ, in which case this species will have to take Jardine's title of *lathami*, unless, indeed, it be the same as the Javan, when *mystacalis*, Temm., must be adopted.

The example marked "Marup, ♂, August," appears to be a young male. Above it is pale olive-green; underneath paler olive-green, but with many of the chin-, throat-, and breast-feathers edged with crimson. A young example of an authentic specimen of *Æ. miles*, in my collection, wears an almost similar garb. Some Malaccan examples of immature males (mus. nostr.) have the throat streaked with yellow, the plumage of the neck and back being brown and crimson mixed.

ARACHNECHTHRA MACULARIA (Blyth), J. A. S. B. 1842, p. 107, ♀, "Malacca."

Nectarinia hypogrammica, Sal. Müller, Verh. Nat. Gesch. Ned. Over. Bez. Land- en Volkenk. p. 173, note, "Sumatra, Borneo" (1843); *id. op. cit. Aves*, p. 63, pl. 8. fig. 3, ♂ (1846); Walden, Ibis, 1870, p. 30.

"Marup."

Since writing on this species (*l. c.*) I have received many examples from Malacca and Borneo. They in no way differ.

CALORNIS INSIDIATOR (Raffles), Tr. Linn. Soc. xiii. p. 307, "Sumatra" (1821); *conf.* Walden, Tr. Zool. Soc. viii. p. 79.

"Belilah*, iris crimson, legs and feet black; Sabu, ♀."

The adult male perfectly agrees with a large series of Malaccan individuals, which I refer to the Sumatran species. I do not venture, from want of a sufficiency of Javan examples, to identify the Malaccan with the Javan *Calornis*, the single authentic Javan individual I have examined appearing to be separable. Adults of both sexes agree in colouring.

TURTUR TIGRINA (Temm.), Knip, Pig. pl. 43 (1811); Walden, Tr. Zool. Soc. viii. p. 85.

"Marup, ♂, iris Naples-yellow, feet crimson."

Agrees with Malaccan, Javan, and Celebean examples.

ARGUSIANUS GRAYI (Elliot), Ibis, 1865, p. 423, "Borneo?"; *Phasianidæ*, pl. xii.

The examples sent by Mr. Everett are unfortunately without labels, but they were undoubtedly procured from some part of northern Borneo†. They belong, as Mr. Elliot was the first to point out, to a species totally distinct from the Malaccan *Argu-*

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* I am not certain whether I have correctly deciphered the spelling of this locality.

† *Conf.* De Crespigny, Proc. Geogr. Soc. xvi. p. 173.

sianus argus (Linn.). The dimensions of the Bornean *Argus* are considerably less. The feathers of the nape, back of the neck, the interscapulars, and the scapulars have black for their ground-colour, the markings being pure white. In *A. argus* the ground-colour of these feathers is brown, and the markings are ochreous. The markings in the Bornean species are of a different character, and are most minute and delicate. The throat, upper breast, and centre of the lower breast and of the abdomen are bright ferruginous, whereas in the Malayan species these parts are deep ruddy chocolate. The markings are quite different, and many are white. The other differential characters given by Mr. Elliot are not very apparent in Mr. Everett's examples. The ocellated marks on the scapulars are certainly smaller; but I can find no difference in the colouring or marking of the lateral rectrices. The following are some of the dimensions, viz.:—

	inches.
Longest primary, from carpal joint . .	13·50
Middle pair of rectrices	44·50
Longest outer pair of rectrices	19·00

EUPLOCAMUS NOBILIS, Sclater, P. Z. S. 1863, p. 119, pl. xvi. ♂, "Borneo," Elliot, *Phasianidæ*, pl. xxvii.

Two female examples; no note of the locality, but probably from the neighbourhood of Sarawak, where Mr. Wallace also obtained an example (*fide* Sclater, *l. c.*). The hen of this species is distinguished from that of *E. ignitus* (Shaw) by the rectrices being dark brown or black.

ROLLULUS ROULOUL (Scopoli), Del. Fl. Faun. Isubr. ii. p. 93. no. 86 (1786), ex Sonn.

Rouloul de Malacca, Sonn. Voy. Indes, ii. p. 174, pl. 100, ♂, descr. orig.

Columba cristata, Gm. S. N. i. p. 774. no. 7, ♂ (1788), ex Sonn.

Phasianus cristatus, Sparrm. Mus. Carls. fasc. iii. pl. 64, ♂, "Celebes," *errore* (1788), descr. orig.

Tetrao porphyrio, Shaw & Nodder, Nat. Misc. iii. pl. 84*.

Green Partridge, Lath. Synop. iv. p. 777. no. 21, pl. 67, ♀, ex Mus. Brit., descr. orig.

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* I have not been able to ascertain the exact date of this volume.

Tetrao viridis, Gm. S. N. i. p. 761. no. 46, ♀ (1788), ex Lath.

Perdix coronata, Lath. Suppl. Ind. Orn. p. 62. no. 1, ♂ et ♀ (1801).

Cryptonyx coronatus, Temm. Pl. Col. 350, ♂, 351, ♀, "Malacca, Sumatra, rare in Java (?)."

"Marup, ♂, iris brown, bill (red at base) black, legs coral-red."

Examples of both sexes, undistinguishable from Malaccan individuals.

RHIZOTHERA LONGIROSTRA (Temm.), Pig. & Gallin. iii. pp. 323, 721, "Sumatra" (1815); Gray & Hardw. Ill. Ind. Zool. pl. —. fig. 2, ♀.

Tetrao curvirostris, Raffles, Tr. Linn. Soc. xiii. p. 323, "Sumatra" (1821).

"Busan, October, ♂, ♀, iris sienna red, bill black, legs white; Marup, July, ♀, iris brick-red, legs whitish."

These three examples agree perfectly with as many Malaccan specimens collected by the late Mr. Maingay. That gentleman noted one of his grey-breasted specimens as being a male. The example marked male by Mr. Everett has also a grey breast; and the two marked as being females are without the cinereous pectoral band. These independent observations coincide with Temminck's statements (*l. c.*).

HYPOTÆNIDIA STRIATA (Linn.), S. N. i. p. 262, "Philippines" (1766), ex Brisson; Walden, Tr. Zool. Soc. viii. p. 95.

"Marup, ♂, iris purple-red, legs leaden, bill red-brown."

In perfect plumage. Identical with Malaccan examples.

XLIII.—*On the Motmots and their Affinities.*

By Dr. JAMES MURIE, F.L.S. &c.

(Plates XIII.–XV.)

"IF naturalists, before offering an opinion on the affinities of groups, were but to consider well the totality of characters belonging to each of those which they suspect to be allied, were but to study all their points of difference as eagerly as they catch at those of similarity, the progress of scientific ornithology would be greatly accelerated" *. If Mr. Blyth's contributions to natural history had been limited even to this single sentence, irrespective of his vast additions to its literature for the last forty years, he would still be entitled to the acknowledgments of ornithologists; for his words are pregnant of much that yet remains to be done ere the gleaners leave the field.

In the obituary of the last Number of 'The Ibis' † Mr. George Gray's worthy life's labours are commented on; but the writer, *en passant*, gently touches on a peculiarity of the deceased most uncommon in these days, "conciseness to a fault—the problem and answer without the intermediate operations," &c.

The above allusions to two experienced toilers in ornithology, practically suggest the course to be pursued in the present investigation, viz. a review of the osteological organization of the Momotidæ in its completeness, with unbiased comparisons, thus affording the data and their legitimate deductions. The ugly barrier to some generalizations concerning groups is the scarcity of dubious or transitionary forms. Hence the halting gait of bird-lore in its anatomical phase, and hence the greater necessity for trustworthy descriptive notices of single specimens or as many of a sort as can be got together. My present subjects, osteologically, are far more ample than those dealt with by previous writers; yet neither the bones of every species, nor of all the genera, have I been able to lay hands on. That which I bring forward, however, enables recognition of affinities to be traced.

I. *The Skull and Sternum of* MOMOTUS LESSONI.

Dealing with my material as it has come to hand, I may note that the cranium of this species measures 2·6 inches long. If this be divided into three segments, the anterior premaxillary comprises 1·5, the orbital 0·6, and the posterior brain-division 0·5 inch.

From above the outline is long and conical, the lateral edges of the beak, however, being just perceptibly concave. The orbital emarginations are clean crescent-shaped sweeps, the posterior limb, mayhap, being a trifle the longer. The interorbital

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* Mag. of Nat. Hist. 1838, vol. ii. p. 318.

† Pp. 340–342.

segment is low and depressed, the middle premaxillary rods, without great elevation, meeting the former at the transverse cranio-facial hinge. Nostrils moderate-sized, situated well back, but with a broadish portion of nasal bone behind.

In the posterior or occipital face the postfrontal processes (*Pf.* fig 5) outflank the part behind, and descend, with slight obliquity, outwards. The superior median parietal groove is shallow, the temporal much better marked, leaving a narrow deepish interspace betwixt the postfrontal and zygomatic processes. The occipital bones are altogether flattish and low.

The inferior base of the skull agrees in contour with the view from the top. The orbital vacuity, here bounded by the jugal, pterygoid, and palatal plate, is long and moderately wide. The pterygoids are situate far back. Basitemporal area decidedly short, though widish, and the foramen magnum comes into full view.

In profile, from the point of the beak to the eye is longer than from the lachrymal to the occiput. There is a gentle steady curve from tip to root of the præmaxilla, without it being vertically deep at any point. Orbit relatively large. The forehead at first rises a little abruptly, and is nearly at full height midorbitally. The postfrontal and zygomatic (*z*, fig. 6) processes and the lachrymal do not encroach much into the orbit. The occipital surface presents a wide and open angle perpendicularly.

In examination of the bones individually, there is noticeable a linear shallow elliptical groove, fully half an inch long at the anterior apex of the palate; this is continued as a single median sulcus backwards to the maxillo-palatines. The palatal surface of the præmaxillæ, transversely and longitudinally, shows a shallow concavity; and the maxillary depressions are acutely angular. Maxillo-palatines spongy, large, and meet each other in the middle line without absolute confluence. Their posterior transverse margins are abruptly truncate. The horizontal palatal plates cease forwards 0·3 inch on the maxillo-palatines. Each is narrower than the space which separates them. Forwardly they are flat, but rearwards slope inwards, leaving a lyre-shaped interval 0·2 inch at widest. The postpalatine plates are slightly scooped; their outer borders shear in behind curvilinearly and without posterior external palatine spicules; their approximating edges are flanged. The palate-bones are continued half an inch behind the maxillo-palatines, and are thus relatively long.

Correspondingly the pterygoid bars are short, set widely apart from each other, and leave but narrow clefts between them and the basitemporal. Anteriorly the pterygoid joins the rostrum and palatal plate by an upwardly bent hinge, fitting partially against the rostrum of the basisphenoid. The pterygoid rods, though flat and tolerably straight, have a considerable twist on their long axis. Jugals long and slender.

The upper premaxillary surface presents moderate arching and barely a culmen. There is a true beak-hinge transversely cutting the nasals, maxillaries, and naso-premaxillary rods from the prefrontals and lachrymals. The nostrils, each half an inch long, are of a wide oval figure. Nasal septum partially ossified. No definition exists between maxillaries and nasals. It would seem, on ordinary examination, as if the lachrymals were absent or lost in the specimen. But I have satisfied myself that they exist in a very rudimentary condition, being merely anchylosed ossicles to the prefrontal processes (*f p*, fig. 6.). In the dried skull, therefore, the fissure (*f*) which separates the beak from the præethmoid is open, and not, as usual, partially hidden by the tear-bones. The same condition of things nearly obtains in some of the Bee-eaters, a membrane occupying the place of or strengthening the delicate spicule or well-nigh absent inferior lachrymal limb on each side. There is very marked pitting of the nasal and frontal superficies. The interorbital portion of the frontal is broad, and the triangular prefrontal processes strike well outwards and downwards. Postfrontal and zygomatic processes are subequal in length, but neither reaches the jugal. Temporal groove short, but well impressed. The basioccipitals and basitemporal are not very uneven. Eustachian cavity large, rostrum of basisphenoid short.

Interorbital septum well nigh closed by an ossific plate. There is an orbito-sphenoid ridge. Orbital limb of the quadrate largish, but the bone altogether only moderately high. Inferior knuckles two in number, set at right angles to each other.

The sternum is short and broad, with two pairs of oval perforations. In the specimen examined by me the innermost on the left side was reduced to a couple of small foramina. Pectoral plates flattish, and, so far as can be judged, inclining to a chevron-shape. Keel deep forwards, and well produced in a ploughshare, with shallow middle emarginations. Costal process strong, long, and with four costal facets. Rostrum acuminate, length moderately upturned and interiorly excavated.

Coracoid 1·05 inch, the oblique sternal diameter 0·8 inch, scapula 1·2 inch, and furcula 0·9 inch long.

The furcula has no descending process or interclavicle. It has a wide inferior arch, where the bones are very slender; superiorly they are stouter, but have no special expansion. Shaft of coracoid flat, and epicoracoid extension moderate; the head of the shaft presents little enlargement; acromion absent. Scapula pretty straight, or with only a light curve to the broadish terminal end.

II. *Cranium &c. of* MOMOTUS BRASILIENSIS.

This species I have not had an opportunity of examining; but Mr. Eyton [*] makes a few remarks upon it, which I need not quote, as they agree well with what has been said of *M. lessoni.* He observes, the head presents some likeness to that of *Coracias garrula.* His outline of the postpalatals of *M. brasiliensis* [†] appears a perfect counterpart of the same region of *M.* (*Baryphthengus*) *ruficapillus*, a diminutive rod-like vomer being represented.

Of measurements, he gives head 2·8 inch long, breadth 1·2, humerus 1·6, ulna 1·7, metacarpus 0·7, tibia 1·8, and metatarus in length 1·2. Save ulna, these closely correspond with the measurement of *M.* (*B.*) *ruficapillus.*

III. *Osteology of* MOMOTUS (BARYPHTHENGUS) RUFICAPILLUS.

Levaillant [‡] figured a species of Motmot under the name of "Le Motmot dombé," to which Vieillot [§] gave the name of

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[*] Osteologia Avium, p. 59.

[†] Pl. xii. fig. 12.

[‡] Ois. de Par. i. p. 113, pl. 39.

[§] Nouv. Dict. d'Hist. Nat. t. xxi. p. 258.

Baryphonus ruficapillus, and others the names *levaillantii, dombeyeanus, dombeyi, tutu,* and *rubricapillus.* Dr. Sclater [*] at one time held that the *Motmot dombé* was doubtfully referable to *Momotus cyanogaster,* founded by Vieillot on the "Tutu" of Azara; but at a later date [†] he followed Dr. Cabanis [‡] in calling the bird *Baryphthengus ruficapillus.*

I mention this circumstance because of my having received, through the kindness of Mr. O. Salvin, a skeleton labelled by him as belonging to *Momotus* (*Baryphthengus*) *ruficapillus,* from Rio Janeiro, the name of which is therefore authenticated by the last-mentioned ornithologist. I shall institute a comparison of this reputed genus with those treated of in the last sections and *Eumomota,* to see if the bones bear out the differential value assigned to it by slight variation in the feathering, viz. 10 rectrices, the middle non-spatulate.

The vertebræ, taken regionally, are :—cervical 13; dorsal 6; lumbo-sacral 11 or 12; caudal 7; equivalent to a total of 37 or 38.

There are 7 ribs on either side, the hindmost pair being truly lumbar ones. Besides these well-developed costæ I also observed a pair of rudimentary ribs (or riblets) in connexion with the last neck-vertebræ. Spinal column and ribs appear in numbers, &c., to resemble those of *Eumomota.*

To compensate for having only figured a portion of the base of the skull (Pl. XV. fig. 44) I may note a few of its admeasurements. Extreme length 2·8; greatest width at the quadrates 1·2; greatest vertical depth without the mandible 1·0; transverse diameter at the base of the beak 0·75; transverse diameter immediately in front of the nares 0·4; and the mandible in extreme length 2·5 inches. The cranium, therefore, is longer than that of *Momotus lessoni* by about 0·2 inch, other measurements yielding increment in proportion.

The cranial configuration agrees with the latter in nearly every respect, the only variation consisting in a trifle more arching of the beak and narrowing forwards, a kind of ploughshare-like expansion of the orbital limb of the quadrate, and possession of a diminutive rod-like vomer—points which are, I should say, of no more than specific value, the last possibly but evidence of the greater intactness of the specimen after maceration; for, as I have noted, Eyton shows the existence of a vomer in *M. brasiliensis.* I may take cognizance of the presence of a large ossified sclerotic, which in *Momotus* (*Baryphthengus*) *ruficapillus*, as in *Eumomota superciliaris*, I have found thin and delicate.

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[*] P. Z. S. 1857, p. 258.

[†] Cat. Am. B. p. 262 (1862).

[‡] Mus. Hein. ii. p. 114.

As to sternum and shoulder-girdle, the notches are converted into foramina, as in *Momotus* and *Eumomota*, and they are of a size intermediate between these two forms. The extreme length of the breast-bone from the rostrum backwards is 1·4; greatest width posteriorly 1·1 inch. The coracoid is 1·1 inch long, the oblique sternal diameter shorter by 0·1 inch. In this respect it stands midway between the two genera compared, but with proclivity towards *Eumomota.*

Excepting in dimensions, the pelvis has no feature peculiarly its own. Its characters, as that of *Eumomota*, are shortness, posterior breadth and flatness of the dorsum. The præacetabular and postacetabular areas are subequal in length. The width of the latter is much greater than its length. The fore ilia lie widely out, and with little obliquity of tilt. There is only an indication of shelving of the horizontal ridge dividing postilium from ischium. The tuberosity, the spine, and the ischiatic space are alike short, the former, however, being widish. The inner anterior iliac borders do not meet the neural spine and convert the muscular spaces into foramina, as is the case in the Touracous.

Pelvic dimensions:—extreme length 1·2; greatest width (at ischia) 1 inch.

The humerus is stout, of moderate size, and the shaft is bent upon its long axis outwardly in the upper and backwardly in the lower half. The radius has a thickish shaft in relation to that of the ulna. In pattern the metacarpus is identical with that figured of *Eumomota* (figs. 26–31), but a little larger. There is a well-marked and roughened process above, where the thumb articulates, and in approximation to the first carpal bone during extension of the wing. The second outer moiety of the metacarpus is laterally flattened, rough, and it appears to be that portion of the united bone which descends lowest.

The femur is about one third shorter, and more slender than the humerus. The tibia is not equal to the ulna in stoutness of shaft; but its ends are quite as large. The tibial crest is short, sharp, knife-like, and moderately prominent. The external tuberosity is fair-sized, and hides the head of the fibula as looked at from the front. The fibula is short, and its lower half rests against a compressed ridge of bone outstanding from the upper end of the tibial shaft. There is a small bridge of bone between the inferior condyles of the ulna, and through which the extensor tendons pass. The tarso-metatarse (fig. 43) has a triangular shaft of goodly extent. The bifid or deeply grooved calcaneal process possesses but a single perforation for the passage of the flexor tendons. The grooving of the shaft on the inner side of this is large and deep; and the anterior fluting of the upper half of the bone forms also a considerable impression. As regards the three inferior knuckles, they are parallel, and the middle descends a shade the lowest. The metatarsal element of the tarso-metatarse is short, stout, and pyriform. The toe-bones have the usual numbers 2, 3, 4, and 5. The phalanges sensibly shorten distally.

The measurements, &c., of the limb-bones are as under noted:—

Momotus (*Baryphthengus*) *ruficapillus.*

	Humerus. in.	Ulna. in.	Meta-carpus. in.	Mid phalanges. in.	Total length. in.
Wing	1·7	2·15	0·85	0·6	5·3
	Femur.	Tibia.	Tarso-metatarse.	Mid-toe phalanges.	Total length.
Leg	1·2	1·95	1·2	1·1	5·45

Without wishing to tire by too long and dry detail, I nevertheless insert here a series of calculations of the proportional long diameters of the wing- and leg-bones. In my paper on the Green Tody, *T. viridis* (P. Z. S. 1872), I endeavoured to show in what respect that long-shanked bird bore consanguinity to the Motmots and Kingfishers. In so doing I necessarily laid some stress on the tarsal elongation and other limb-peculiarities. I had not then the Motmots at my command, and quoted Eyton's measurements. I since find the ulnar length he gives of *M. brasiliensis* questionable, and in this place, as appropriate, rectify chance of error in false data and conclusions.

	Momotus (Baryphthengus) ruficapillus.	*Eumomota superciliaris.*
Ulna to humerus	126 : 100	126 : 100
Metacarpus to humerus	50 : 100	48 : 100
Mid digit to humerus	35 : 100	37 : 100
Tibia to Femur	162 : 100	162 : 100
Tarso-metatarse to femur	100 : 100	100 : 100
Mid anterior toe to femur	91 : 100	100 : 100
Humerus to wing	32 : 100	32 : 100
Ulna to wing	40 : 100	40 : 100
Metacarpus to wing	16 : 100	15 : 100
Mid digit to wing	11 : 100	12 ? : 100
Femur to leg	22 : 100	21 : 100
Tibia to leg	35 : 100	36 : 100
Tarso-metatarse to leg	22 : 100	21 : 100
Anterior mid toe to leg	21 : 100	21 : 100
Femur to humerus	70 : 100	59 : 100
Tibia to ulna	90 : 100	59 : 100
Tarso-metarse to metacarpus	141 : 100	123 : 100
Mid. ant. toe to mid. dig. of wing	183 : 100	160 : 100
Leg to wing	103 : 100	89 : 100

The tongue-bone of birds is usually developed or built up by three centre-pieces in a line, and a pair of retro-current styliform forks, containing each two or three segments. Altogether they compose the hyoid arch, or are equivalent (*cæteris paribus*) to the branchial arches of fish. In the adult *M. ruficapillus* the three median elements are soldered together—the fore part (glossohyal) being stoutish and truncate, the middle (basihyal) laterally indented with facets for the articulation of the side-pieces, and the posterior (urohyal) flatter and spatulate. The anterior segments of the side-rods (cerato-hyals) are bony, the smaller tendors piece behind cartilaginous. It is the latter which connects the arch with the skull, and the median fore piece which enters into the substance of the tongue*.

Having run through the skeletal peculiarities of this supposed generically distinct Motmot, it devolves upon me to register the assertion that these do not support the assumption. It becomes a question, then, whether the anomaly of 10 tail-feathers, the middle non-spatulate, is sufficient in itself to elevate the bird to the rank of a genus!—an opinion I certainly for one would not adopt†.

IV. EUMOMOTA-SUPERCILIARIS *skeleton generally.*

The specimen of this genus at my disposal is one which was presented by Mr. Osbert Salvin to the Museum of the College of Surgeons in 1867. The bones have all been separated during maceration, which admits a good study of them individually. The first glaring fact is that the skull and sternum, to general appearance, are so like *Momotus* that there is a difficulty in conveying in words the distinctive shades of difference. When the inequality of size is taken into account the points seem more cogent.

With regard to the breast-bone, its sternal plates, like those of its *confrères*, are widish and shallow; but the clefts or xiphoid spaces are larger and deeper—the pedate processes, however, all joining, so that the spaces are not deprived of the character of foramina. Keel and rostrum as in *Momotus*, but the costal processes are proportionally a trifle shorter. Relatively and absolutely the coracoid of *Eumomota* is shorter, being subequal to the oblique sternal diameter; the epicoracoid is broader, and the shaft a grade stouter. The scapula posteriorly tends to increase of curvature.

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* The technical names of the different bones of the hyoid apparatus above given are those in most general use amongst comparative anatomists. But I must be just to my friend Mr. Parker, and mention that in his valuable contribution on *Gallus domesticus* (Trans. Roy. Soc. 1869) he dissents from the older views as regards the homology and nomenclature of the tongue-bones.

† [We think Dr. Murie hardly puts this fully. Up to the present point of the discussion the admissibility of the genus *Barypthengus* not only rests upon the characters of ten tail-feathers, the central ones being non-spatulate, but those characters plus certain osteological ones Dr. Murie has taken pains to point out, and plus certain others which we think will be seen by comparing the maxillo-palatine bones in the two figures of *B. ruficapillus* and *M. lessoni.*

For specific characters *B. ruficapillus* has no need to appeal to its osseous structure; and, viewing the Momotidæ as a whole, there is no difficulty in defining what may be called its generic characters. This is more than can be said for perhaps one half of the genera of birds.—ED.]

The beak is exactly of the same length as in *M. lessoni*; the latter bird, therefore, has a preponderance in long diameter of the orbito-occipital regions. The premaxillary depth is less in the first, particularly the culmen. Although in *Eumomota* the breadth of the beak seems greater than in *Momotus*, this only applies to its anterior half; for in the latter genus its basal segment is decidedly widest. In the former the nostrils come further back or cut more into the nasals. Its horizontal palatal plates are altogether narrower. The breadth of the frontal between the orbits is alike in each genus—therefore, other things being equal, relatively widest in *Eumomota*. As in the posterior or cerebral segment there is little difference of fore and aft length between the two forms, it follows that the mid or orbital segment of *E. superciliaris* is the chief part wherein curtailment of the skull is effected. *Momotus* undoubtedly has the wider skull occipitally; but the antero-posterior diameter of this part is little, if at all, over what obtains in *Eumomota*.

The mandibular length in the last mentioned is 2·15 inches; of this, the shallow symphysis front-joining portion is 0·85 inch. The bone altogether is low or shallow, and with a slight curvature corresponding to the beak-deflection. There is no so-called "dentary space" or median fissure, this being obliterated by an ossific plate. The inner and posterior mandibular angles are each well marked.

The only appreciable change of pelvic formation from *M. ruficapillus* is in the præacetabular being a shade longer than the postacetabular region; and there is a small foramen in front of the hip-joint or acetabular perforation.

Concerning the shape of the bones of the extremities, what has been said of the preceding type applies in this case. Proportions have already been denoted; the subjoined are the measurements from which the calculations are derived.

Eumomota superciliaris.

	Humerus.	Ulna.	Metacarpus.	Mid phalanges.	Total length.
Wing....	1·35 inch,	1·7	0·65	0·5?	4·2?

	Femur.	Tibia.	Tarso-metatarse.	Mid-toe phalanges	Tot. length.
Leg	0·8 inch,	1·35	0·8	0·8?	3·75

I made out, in all, thirty-six vertebræ, free, conjoined sacrally, and otherwise. The numbers regionally I could not determine.

The trachea is composed of complete bony rings, each narrow and delicate. I presume there are in all about thirty; for I noted twenty-six separate and four or more joined together at the lower larynx. This has no expansion as in some of the Anatidæ, &c.

The tongue-bones follow the pattern of *Baryphthengus ruficapillus,* but are not so stout; and the urohyal is less expanded.

If *Eumomota* is worthy to be segregated as a genus, it is well to remember that its osseous specialities are not many, though possibly leading away from those of *Momotus* in degree rather than kind. To wit, it possesses a shallower skull, though less level frontally; the orbital circuit tends to diminution; the beak and lower mandible are relatively wider throughout and not quite so decurved anteriorly; the xiphoid spaces are somewhat longer, the coracoids shorter; the proportions that the bones of the leg bear to those of the wing evince shortening.

V. *The Alliances of the* MOMOTIDÆ *osteologically considered.*

Whilst the group in bony conformation singularly resemble each other, yet there is a serial gradation wherein *Prionirhynchus* represents one and *Momotus* the other extreme. In the absence of a thorough examination of the former (or of *Hylomanes*), I must perforce refer to *Eumomota* for detail in exemplification of the broader-billed division.

1. *Comparison with the Todidæ.*—I restrict this family to the Green Tody (*Todus viridis*) and its immediate species, thus excluding *Todirostrum* and such like forms of the Tyrannidæ which

were at one time associated with it. In *Todus* we have a bird not half the size of *Eumomota*; yet, when the skeleton of the former is enlarged to double its natural dimensions, as I have done in plate lv., P. Z. S., 1872, an excellent comparison can be instituted. This much is at once apparent, that the Motmots are stamped with a positive bond of osteological affiliation with the Tody. Therefore this is one direct line of their affinities.

The skeletons of *Eumomota* and of *Todus* undoubtedly approach each other in the annexed particulars:—

In shape, relative length, flattening and shallowness of the præmaxillæ; in position and size of the nostrils; in ascent and figure of the cranial parts behind; in condition of postfrontal and zygomatic processes; in constitution of the palatines and maxillo-palatines; in the disposition of the pterygoids; in the mandible as a whole; in four notches to the sternum and in its shape generally; in the nature of the furcula and coracoids; in the relatively short, wide and shallow pelvis; in vertebral numbers; in torsion of the humerus; in morphological development of tarso-metatarse, and especially its extremities; in the proportions of metacarpus to humerus, of tibia to femur, of femur and of tarsus to entire leg; lastly in the arrangement of the toes and syndactyle foot.

The same genera, nevertheless, in their skeletal characters diverge by the following gradations:—

In the proportionate length of the beak to the skull behind, being longer in *Eumomota* than in *Todus*; in the ossific variation of the interorbital septum—a small space only in the former, none in *Momotus*, and a large one in *Todus*; in *Todus* having a considerable-sized lachrymal, the lower limb reaching to the jugal; whereas in *Eumomota* and *Momotus* prefrontal and ethmoidal processes are well developed, and they are only moderately so in *Todus*; in the latter bird having broad mid frontals, and they are wide in the former; somewhat the same relations of parts as regards palatal plates; in the occiput of *Todus* being more full and rounded, whilst in *Momotus* and *Eumomota* the temporal groove is better impressed. The sternal notches are quite open in *Todus*, but terminally connected or converted into large foramina in the Motmots. Of the pelvis, proportionally, its breadth to length is greater in the latter than in the Tody. In the proportions of limb-bones, the Momotidæ and Todidæ stand considerably apart as regards length of ulna to humerus, tarsus to femur, tibia to entire leg. In *Eumomota* the proportional length of the femur to the humerus and of tibia to ulna falls considerably short of what obtains in *Todus*; but *Momotus* precisely agrees with the latter. The Motmots are unlike the Tody as respects length of metatarse to metacarpus, and of entire leg to entire wing.

Thus, all things considered, the two families have characteristic points in their skeleton denoting formation of a kind further removed than what I hold signifies generic import. At the same time there is unity of type. Thus the two, as I shall again notice, ought to come under one division or group.

2. *Comparison with the Coraciidæ.*—Among the Rollers we have extremes analogous to what obtains among the Motmots, viz. narrow and broad-skulled individuals. This repetition is exemplified in *Coracias* and in *Eurystomus* &c. I shall lay more stress on *Coracias*, which exhibits closer resemblances to *Momotus* than to *Eumomota* and possibly *Prionirhynchus*.

C. garrula affords a familiar example; and in analyzing its skeleton point by point I observe the subjoined agreements between it and *Momotus*:—

Fair arching of the premaxillary region; situation of the nostril and moderation of culmen; a considerable-sized orbit; likeness in parieto-temporal grooving and occipital facies; interorbital and postorbital width; spongy maxillo-palatines, which meet mesially. The horizontal palatal plates posteriorly are spineless and round off at the corners.

On the other hand, so far as the skull is concerned, differentiation and contrast are as plainly exhibited in those particulars which I append.

In *Coracias* the beak is but half the length of the entire skull. There is no distinct transverse facial hinge, the premaxillary rods running in a wedge-like manner into the prefrontals. The post-premaxillary depth is relatively greater, the anterior moiety of præmaxillæ narrower; and there is a width and rounding of the top of the beak compared with *Momotus*. In *Coracias* there is a separate and large supranarial foramen; in *Momotus lessoni* this is represented only by a minute orifice; and in *M.* (*Baryphthengus*) *ruficapillus* it is confluent with the nostril. The circumscription of the orbit through the postfrontal process descending to the jugal is a characteristic feature of the Coraciidæ. In *Coracias*, at least, there is a deep prefrontal indent, and the upward obliquity of the skull thence is greater than in that compared, as also is the perpendicular occipital surface. Pterygoids proportionally longer than in the Motmots. The premaxillary margin overhangs the mandible; the rami of the latter are deeper, and the shortening and scooping of the symphysis are markedly stronger, in the Coraciidæ.

As to the sternum, it is longer according to width, the notches deeper and not converted into foramina. Coracoids shorter than oblique sternal diameter; epicoracoids broader. Scapula straighter. The pelvis is narrower in proportion to length, and the ischial portion produced more, than in the Motmots.

In some of the species and genera of the Coraciidæ the points of divergence from the Motmots increase. *C. bengalensis* has an interclavicle and postpalatine spines, along with a shorter tarsus. In *Eurystomus* (*E. australis*) still greater changes obtain; and while the beak and skull posteriorly broaden, they are abbreviated.

I find in *Coracias abyssinica* the proportionate lengths of the tibia, tarso-metatarse, and mid toe to be considerably less than in the Motmots and Tody, and the same diminution to excess in all the bones of the leg to the corresponding ones of the wing.

3. *Comparison with the Meropidæ.*—In their sternal apparatus the Bee-eaters retreat from the previous groups. It is more elongate and narrow in them, has deeper clefts, long slender xiphoids; the rostrum (at least in *M. apiaster*) is trifid, and in *M. melanura* is not excavated; in all the keel is less emarginate anteriorly. The coracoid is remarkably short, and inferiorly extraordinarily wide; furcula expanded above; scapula relatively broader than in the Motmots. Pelvis deeper and longer in proportion to breadth. The inordinate length, curvature, and tenuity of the beak in such forms as *Merops cyanotis*, *M. melanura*, &c., doubtless with a certain depth of mandible (as Alph. M.-Edwards, *l. c. infrà*, pl. 165, has figured in

that of *M. amictus*), slender palatines and maxillo-palatines, smaller size and forward position of the nostril and other points, take away from the Momotine type.

But it is also as patent that there are many osteological relations of proximity. There is posterior breadth of the skull, a transverse beak-hinge, interorbital ossification, rounding of post-palatal plates, short pterygoids, a delicate vomer; the lachrymal is joined to the prefrontal processes, and, inferiorly, is very delicate, in some species being replaced by membrane below, as in *M. melanura* (which also, I find, has a minutely serrate edge to beak, and the tongue-bones as in *Eumomota*). The legs are slender; but the construction of the tarsus is nearly as in *Momotus*, though the calcaneal process is more elongate and sideways but with one basal perforation. The $\frac{3}{1}$-toed foot is truly syndactyle.

4. *Comparison with the Alcedinidæ.*—Among the Kingfishers, without taking colour into consideration, there are four genera, at least, which carry exterior resemblances promising affiliation to the Motmots. These are:—the Papuan form *Syma*; *Tanysiptera*, also confined to the neighbourhood of the same region; *Myoceyx* and *Ispidina*, African birds. *Syma* notably has a serrate mandible. *Tanysiptera* 10 rectrices, the median pair long and spatulate. The figure of the relatively shallow beak of *Myoceyx* and *Ispidina*, and other general characters, in the same way suggest Motmot resemblances. It is to be regretted that no skeletons of the first three genera exist in this country. I must confine remarks, therefore, to the fourth, while incidentally glancing at points in *Dacelo* &c.

The Halcyoninæ, and with them *Ispidina*, possess a skull whose contour and general proportions approximate to *Momotus* and *Eumomota*, and yet is impressed with a cast peculiarly its own. For instance, the lower mandible is far more acute and bony, its bridge longer—roughly speaking, half the mandibular length in them, and a trifle over one third in the Motmots. The Kingfisher group more immediately under consideration have less curved, more conical præmaxillæ, with a depression existing at the frontal root. The brain-segment of the Motmot skull is decidedly broader, higher, and less rotund than in these Kingfishers. The latter have a large lachrymal, whose inferior limb is inflated and spongy. Their interorbital septum has a large unossified space; and there is a groove immediately in front of the postfrontal process—the latter short, the orbit gaining accordingly. The temporal grooves in the Kingfisher well nigh meet; they are mesially wider apart in the Motmots, therefore causing the occipital facies to be fuller. Instead of a linear separation, with flatness of maxillo-palatines, which characterizes the latter, the former have them thoroughly joined together inwardly; and at this point they are deeply grooved, and shoot back and up into the cleft behind. The broader palatal plates spined posteriorly, and reduced postnarial aperture again distinguish Kingfisher from Motmot, besides other minor detail of parts. Still, one thing with another, there is no gainsaying the fact that the two avine types share many features in common in cranial composition and its lineaments generally.

The Dacelonine skull departs in beak-breadth, elongation of upper lachrymal limb, and sundry other particulars. The Alcedine section run off at an opposite tangent, and therein pursue a course affining them with the Bee-eaters.

The pelvis of the Halcyoninæ offers strong resemblances to the Motmots. The sternal apparatus, however, has less agreement, this section of the Kingfishers having an upper furcular spur, a greater anterior emarginate ploughshare keel, open notches, and a breastbone longer relatively to its breadth than obtains in the Motmots.

In the proportions of limbs and their segments to each other my researches show that the wing-bones of the Momotidæ and Alcedinidæ do not widely differ. Such is not the case with the leg, where in all the latter the tarsus is relatively shorter, and in *Ceryle* no more than half what obtains in the Motmots. As regards proportions of the entire length of the leg to wing, *Eumomota* bears towards the *Halcyoninæ*; but this section and *Momotus* much exceed the rest of the Kingfishers in this respect.

5. *Comparisons with other Families*—I may asseverate that the foregoing bird-groups, taken all in all, are those which in skeleton come nearest the Momotidæ. It is not so essential, then, that I should follow the minutiæ of the bony constituents of other presumed allies further than by referring to a few of the more obvious points.

Concerning the yoke-footed and $\frac{3}{1}$-toed Bucerotidæ, as Alph. Milne-Edwards observes[*]:—“Il est impossible de confondre le tarso-métatarsien des Calaos avec celui d’aucun autre oiseau ; cet os est très-enflé et remarquable par l’existence de deux pertuis supérieurs énormes qui servent en même temps de trous pneumatiques.” Their sternum has but one pair of xiphoid notches ; and in a variety of ways their skull is vastly different from that of the Motmot’s.

The foot of the Trogonidæ is $\frac{2}{2}$-toed ; the first and second are those thrust behind. The upper extremity of the tarsus has a most unusual elongate posterior process, and two perforations at the side ; the lower end of the same bone has an enlarged external knuckle (trochlea), and the internal one thrust backwards. The pelvis is short and broad to an extreme, the ischium long. There is an interclavicle (at least in *Trogon mexicanus* and *T. atricollis*) ; and the coracoids meet inferiorly. The skull is broad and short, more Swift-like than that of the Motmots. There is a considerable interorbital space. Maxillo-palatines reduced to narrowed extending plates. An extensive palatal and postnarial cleft, and the palate-plates narrower. Basipterygoid processes obtain. All these are most important and trenchant distinctions from the Momotidæ.

The skull of the Jacamars, judged by *Galbula leucogastra* (the broader-billed section, *Jacamerops*, &c., not having come under my observation), has a very different form from that of the Motmot’s. There is attenuation of the beak, a short lofty brain-division, descent of the postfrontal process to the jugal, &c. Their sternum, with part likeness to *Todus*, has great fissures and delicate rods. Their tarsus and the zygodactyle construction of the foot also exclude their close relation to the Motmots, advocated by some.

Lastly, as to the Ramphastidæ, Toucans. Their zygodactyle foot coordinate with adaptive alteration of the lower end of the tarsus, peculiar enlargement of the bottom of the femur, pelvic elongation, forward lengthening of sternal keel, division of the clavicles (united in *Pteroglossus*), and upper enlargement of each half, great beak, and other cranial peculiarities sufficiently distinguish their skeleton from the Motmot type. Doubtless such a form as *Aulacoramphus* is considerably modified, especially as regards skull, which *en tout ensemble* bears a resemblance to that of *Momotus*; but a critical review of its composition less sustains the idea.

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[*] ‘Recherches sur les Osseaux Fossiles de la France,’ tome ii. p. 305, and Atlas, ii. pl. clxix. figs 24, 25.

VI. *Compendium of Facts and Opinions on the Motmots.*

The literature having reference to the Motmots may conveniently be arranged into six different foci, which I shall curtly review.

1. *Figures.*—The subjoined list of names * indicates those forms of which good illustrations are extant.

- Prionirhynchus.
  - *P. carinatus.*
  - *P. platyrhynchus.*
- Eumomota.
  - *E. superciliaris.*
- Hylomanes.
  - *H. momotula.*
- Baryphthengus.
  - *B. ruficapillus.*
- Momotus.
  - *M. lessoni.*
  - *M. cæruleiceps.*
  - *M. mexicanus.*
  - *M. swainsoni.*
  - *M. brasiliensis.*
- Urospatha.
  - *U. (M.) martii.*

The presumed species *Momotus nattereri*, *M. microstephanus*, *M. subrufescens*, *M. æquatorialis*, and *M. castaneiceips* appear hitherto not to have been figured, a description sufficing to establish their identity and closeness to or variation from an acknowledged species.

2. *Habits.*—The travellers Don Felix Azara †, Levaillant ‡, Waterton §, and Schomburgk ||, individually, graphically relate facts concerning the live Motmot in its wild state and in captivity. We are also indebted to Swainson ¶ and Sir William

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[*] The synonyms and exact reference to publications are to be found in Sclater's 'Catal. of Amer. Birds,' and P. Z. S. 1857, and in Cab. et Hein. 'Mus. Hein.' &c. Half of the above have been figured by Jard. & Selby, 'Ill. Ornith.'; the remainder by Levaillant, Spix, Swainson, Des Murs, Vieill., Gray, Licht., Leadb., and Sclater.

[†] Apuntamientos para Paxaros del Paraguay.

[‡] Ois. de Par. tome i.

[§] Wanderings.

[||] Reis. in Brit. Guiana; and "Ueber *Prionites momota*," Naumannia, 1851.

[¶] Zool. Illus. 2nd ser.; and Nat. Hist. and Class. of Birds, vol. ii.

Jardine* (through Mr. Kirk, a friend of his) for some interesting information on moot points. Other descriptions of a miscellaneous kind are tobe found scattered through various volumes.

The birds are solitary, or live in pairs, preferring the shady recesses of the forest. They sit motionless on a low branch, often in nooks near rivulets, wherefrom they dart on their prey. Swainson says they catch their prey on the wing (Fissirostres); but Kirk avers that they alight to seize it. Ordinarily their food is insects, reptiles, and fruits. In captivity a bold mistrusting bird, the Motmot will then eat bread, raw meat, oranges, water-melons, small birds, mice, lizards, snakes, cockroaches, &c. On pouncing on these latter, they afterwards strike them violently against the ground or perch. Songless, their only cry is "Houtoo." They breed in holes, and about May lay three or four dusky cream-coloured eggs. Sexes undistinguishable; and the young scarcely differ except in the more downy texture of their feathers. Primaries shed at the first moult. The story has found credence that they nibble off the occasionally absent vanes of the long middle tail-feathers; but this notion has been contradicted.

3. *Structure other than skeletal.*—The more important points of their internal organization have been recorded by several observers †. Œsophagus wide; proventriculus moderate; stomach small and oval, inner coat coriaceous, muscular wall only of moderate thickness. Intestines narrow; cæca long, and situate near the end of the gut; cloaca large. Tongue lengthened, bifid for half an inch, and feathered at the sides. Jardine says of the muscles of the larynx that they appeared to him to resemble in number and position those of the Corvidæ (?).

Their syndactyle foot is moderately adapted for terrestrial progression (Blyth). Tarsus scutellate; mid anterior claw with an expanded inner edge. Beak Corvine, margins denticulate;

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* Ann. of Nat. Hist. 1841, vol. vi. p. 321.

† Among these I may refer to:—Jardine's (*l. c.*) notice of the viscera of *Momotus Swainsoni* (*Prionites bahamensis* of Swain.): Giebel on the tongue, 'Zeitsch. f. Gesam. Naturwiss.' Halle, 1858, p. 27, tab. i. fig. 37 (his figure in outline from above does not show the cleft tip so markedly as in Jardine's woodcut); Macgillivray, 'Brit. Birds,' vol. ii.; Blyth, 'Mag. Nat. Hist.' vol. ii.; Nitzsch, 'Pterylographie,' &c.

the small round nostril is nearly basal and bare; rictal vibrissæ few and unobtrusive. Plumage loose-webbed; contour-feathers with an axillary plume; spinal tract without a space; wings rather short and rounded. Remiges 21; the first four graduated, 4th, 5th, and 6th longest; rectrices graduated, numbering 10 and 12; and in nearly, but not all, the central ones are long and with a racket. Oil-gland elongate, oval, and naked.

4. *Generic Diagnosis.*—The group has been divided into six genera, partly on account of the nature of the tail-feathering, and partly on the conformation of the beak. The characters given are:—

Momotus. Long compressed rostrum; strongly serrate mandible; a long tail, with 12 rectrices, the two middle spatulate.

Urospatha. Mandible like preceding; 10 tail-feathers, median pair terminally spatulate*.

Baryphthengus. Beak as above; 10 rectrices, non-spatulate.

Hylomanes. Weaker somewhat dilate rostrum, less incurved and finely serrate; a short tail, non-spatulate, with 10 feathers.

Prionirhynchus. Long, dilate, carinate, incurved, finely toothed beak; 10 rectrices, median long and spatulate.

Eumomota. Less carinate, dilate, and curved rostrum than last, middle only of margin serrate: 10 rectrices, graduated, truncate apically, two middle spatulate.

5. *Geographical Distribution.*—Dr. Sclater† remarks:—"The Motmots are a purely tropical American family, occupying an area nearly coequal with that of several other characteristic groups belonging to the same fauna. From Southern Mexico, where two species occur, they extend through Central America and some of the more Southern Antilles, over the whole of the eastern portion of South America, as far southwards as south-eastern Brazil and Paraguay, where a single species is found. Their true focus seems to be Central America, where the greatest number of species and the most characteristic forms occur."

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* In the Atti della R. Accad. d. Sci. di Torino, 1869, vol. iv. p. 180, Dr. Salvadori forms the new genus, *Urospatha*, limited to one species, the *Prionites martii*, Spix (*Baryphonus* and *Momotus semirufus* of Sclater). See also notice in 'The Ibis,' 1869, p. 222.

† P. Z. S. 1857.

6. *Their supposed affinities.*—In the 'Systema Naturæ'[*] of Linnæus, *Momota* comes under *Rhamphastos,* between the Psittacea and Buceros. Buffon[†] places in sequence the Anis (Crotophaginæ), the Houtou (Motmots), the Huppe (*Upupa*) *Promerops,* and the Guépiers (Meropidæ). Cuvier, in his 'Règne Animal,' ranges under his syndactyles the Bee-eaters, Motmots, Kingfishers, Todies, and Hornbills, in the order here given. Vieillot[‡] says of *Prionites* :—"Cette famille se compose des genres *Motmot* et *Calao.*" Latham's arrangement[§] runs:—Parrots, Toucans, Motmots, Australian Channel-bird (*Scythrops*), Hornbills, Beef-eater (*Buphaga*). Lesson[||], who studied the group circumspectly as to specific forms, locates them in the family Bucéridées, containing Motmot and Calaos (*Buceros*)—thus following Vieillot, but altering the title of the group.

Swainson[¶] took up the subject warmly, and ran a tilt with all and sundry, unquestionably bringing forward cogent reasons for their separation from the Toucans. But he goes to the opposite extreme in classing them under the Trogonidæ, and as the nearest form to the Jacamars (*Galbula*). Blyth[**] strings in linear order his Cylindrirostres, containing Meropidæ, Coraciidæ, and Halcyonidæ, his Angulirostres combining Todidæ and Galbulidæ, his Serratirostres composed solely of Prionitidæ (*Motmots*), and his Levirostres, wherein are the Rhamphastidæ and Musophagidæ. He observes:—"Thus, although no passage exists from the Motmots into the Kingfishers or into the Toucans, and although the Kingfishers and Toucans differ materially, yet the interposition of the Motmots so connects those two other groups, that they cannot be ranged with either of them to the exclusion of the other; and the Toucans, in like manner, combine the characters of the Motmots and Touracos, &c."

Nitzsch's[††] pterylographic studies lead him to class in his

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[*] 12th ed. 1788, vol. i. p. 357.

[†] Hist. Nat. 1818, vol. xi. p. 333.

[‡] Dict. d'Hist. Nat. vol. xxviii. p. 153.

[§] Hist. of Birds, 1822, vol. ii.

[||] Manuel d'Ornith. tom. ii. p. 103.

[¶] Classification of Birds, vol. ii.

[**] Mag. of Nat. Hist. 1838, vol. ii. pp. 318 & 422, &c.

[††] Pterylographie, &c., Eng. Trans. Ray Soc. 1867.

Picariæ a group, the Todidæ, comprehending *Coracias, Merops, Prionites, Todus,* and *Galbula.* Jardine* thought the Motmot's position would ultimately be found to be that assigned by Swainson, remarking, at the same time, that their analogies towards the Crows are extremely strong.

Bonaparte† threw the families thus:—Trogonidæ, Galbulidæ, Alcedinidæ, Meropidæ, Prionitidæ, Coraciidæ, Eurylaimidæ, Cotingidæ, and Todidæ. Gray and Mitchell‡ well nigh reversed the order, their Coraciadæ containing Coracianæ, Todinæ, Eurylaiminæ, Momotinæ, Trogonidæ—the Alcedinidæ, with Bucconinæ, Halcyoninæ, Alcedinæ, and Galbulinæ following. In his commentary thereon Strickland§ says:—"The Momotinæ are evidently only the American group of the Bee-eaters, and might, I think, be included with them as a subfamily, Meropinæ, of the Halcyonidæ."

The Motmots (Prionitidæ) are also closely related to the Trogons, and may be considered an offshoot of them, or of the Bee-eaters, parallel to the Jacamars. Such is Wallace's|| opinion; whilst Blanchard¶ suggests of the group:—"Se lient évidemment par beaucoup de caractères aux Guépiers [Bee-eaters]; ils semblent jusqu'à un certain point représenter dans le nouveau monde ces derniers qui n'habitent que l'ancien continent." Then follows *Alcedo* &c. In the Catalogue already quoted, Sclater assigns six families to his sectio Brachychires, ordo Fissirostres. In succession these are Momotidæ, Todidæ, Alcedinidæ, Galbulidæ, Bucconidæ, and Trogonidæ.

The osteological position of *Momotus* Eyton** makes in his family Buceridæ, along with the Hoopoe and Hornbills, the family Alcedinidæ, containing Rollers, Tody, Bee-eaters, Jacamars and Kingfishers, going before. In Huxley's†† tabular notice Meropidæ, Momotidæ, and Coraciidæ take a place among his $\frac{3}{1}$-toed Coccygomorphs. Neither is Alphonse Milne-

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* Paper cited. † Conspectus. ‡ Genera of Birds.

§ Ann. of Nat. Hist. 1841, vi. p. 417, and "Map of the family Alcedinidæ," vol. vi. pl. 8.

|| Ann. & Mag. Nat. Hist. 1856, 2nd Ser. vol. xviii. p. 198.

¶ "Ostéologie des Oiseaux," Ann. d. Sci. Nat. 1859, tom. xi. p. 117.

** "Osteologia Avium." †† P. Z. S. 1867, p. 467.

Edwards* very explicit, but appears to regard the Momotidæ as allied to the Bucerotides among the Syndactylinæ. Reinhardt† locates *Momotus ruficapillus* immediately after *Ceryle* (Kingfishers). Sharpe‡, through *Ispidina* and *Myoceyx,* hints linear connexion from the Kingfishers to the Todidæ and Momotidæ.

VII. *Conclusions derivative from data given.*

Definitions of a tentative kind, whereby subdivision of the family may be recognized seem to me a difficult matter. In short, as much as my research among the group enables me to tender an opinion, the Motmots barely admit of such a thing as stable genera, so intertwined are their structural relations. Regarding figure of the beak, as Plate XV. shows, the gradation from the narrow to the broad variety is the reverse of sudden. The magnitude of the mandibular serrations almost bears a ratio to the size of the bird. The length of the tail-feathers from one form to another is a series from shorter to longer; even the possession of a racket to the tip of the elongate median rectrices of some is deemed to be but a question of moult and age of the bird. Thus the main differentiation to be depended on is ten rectrices in some and twelve in others. Plumage, as part and parcel of the tegumentary appanage, is notoriously subject to irregularities of development dependent on a variety of secondary causes. This circumstance, especially, weighs, as but a modicum of information is known respecting the frequency and succession of changes induced during moult and age in the Motmots.

I have already intimated that *Baryphthengus* compared with *Momotus* has no skeletal or organic character other than deviation in its tail-feathers; and this anomaly pertains to *Urospatha.* The assumed more dilate and finer-toothed beak of *Hylomanes* is one of slight degree, not kind; whether its osteology may offer singularity is dubious, reasoning from the similarity of structure in the other forms. Proceeding to the two other assigned genera, and taking for granted that their broader carinate beak and osteological variation (as I have noticed in *Eumomota*) hold good as generic characters, it still does not seem to me advisable to separate *Prionirhynchus* from *Eumomota.* If partition there needs be, I would propose restriction to four genera:—

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* Oiseaux Fossiles, tom. ii. p. 300.

† Bidrag til Kundskab om Fuglefaunaen i Brasiliens Campos. Copenhagen, 1870.

‡ Map of the Family Alcedinidæ, in his Monograph of that group.

Momotus.—Narrow, moderately deep beak, large-toothed; leg-bones relatively long to the corresponding wing-bones; rectrices 12, graduated, median pair elongate and spatulate.

Baryphthengus.—With 10 tail-feathers; otherwise resembling the foregoing. (This genus would include *Urospatha.*)

Hylomanes.—Beak nearly as in preceding, but with smaller serrations; rectrices 10, very slightly graduated, short and without spatulation.

Eumomotus.—Broader, shallower, carinate beak, finely denticulate; leg-bones comparatively short to corresponding wing-bones; rectrices 10, graduated, elongate, two central ones spatulate. (The so-called *Prionirhynchus* comes under this heading.)

That the Motmots are entitled to be looked upon as a good family group, I think is attested by the remarkable similarity, dominant in all, and sufficiently distinct from their nearest fraternity to permit of their segregation as ordinarily understood in ornithology.

Basing affiliation on the radical type of the skeleton in its detail, on their internal anatomy, on the plumage, on their eggs, nest-construction, and rearing of young, and on their food and habits generally, the birds which best accord with the Motmots are the Tody, Kingfishers, Rollers, and Bee-eaters.

Of these, *Todus* in preponderance of particulars has the advantage of kinship. Its small size and curt tail affine it to *Hylomanes.* Its pterylosis (with axial plumes), long and thin tongue, large cæca, serrate beak, weak rictal bristles, habitat, insectivorous food, short flights, living in pairs, breeding in holes, colour of eggs, and osteological constitution generally, are, one and all, in the main essentially Momotine. Nitzsch very happily made the Prionitidæ and Todidæ companions; but Blyth, with a keen appreciation of characters, I think, was less fortunate in yoking *Todus* to *Galbula,* evidently being misled by, or laying too much stress on, similarity of the digestive organs, imperfectly known in the Motmots at the time he wrote.

Next in order the affinities of the Motmots lie between the Alcedinidæ and Coraciidæ; and balancing one thing with another, certain genera of the former exhibit more numerous points in their favour, though every thing depends on the value attributed to a given set of characters. The Kingfishers, as a group, are wanting in aftershaft to feathers; usually their tongue is short and somewhat rounded, cæca diminutive, rictal bristles absent, structural conditions the opposite of the Rollers' (*Coracias*), and approximating the latter to the Motmots. In some of the Rollers where there is elongation of the tail-feathers it is the outer and not inner ones; they are more often gregarious birds, strong on the wing; and their foot is less syndactylous, thus deviating in Momotine tendency. Again, among the Kingfishers, *Tanysiptera*, in having but 10 rectrices, the two median spatulate, bears a likeness to *Urospatha* and to *Eumomota* and its ally. *Cittura*, in its grooved culmen, repeats *Prionirhynchus*; *Myoceyx* and *Ispidina*, by short tail, resemble *Hylomanes*, whilst *Syma*, with serrate mandible and 12 rectrices, offers a counterpart of *Momotus*. Moreover in its tongue *Pelargopsis* differs from its brethren, and gains likeness to *Momotus*. The Bee-eaters (in genera) after the same fashion, approach and recede from the Motmots; but whilst yoke-footed and feathered like them and partly *Coracias*, they are truly birds adapted in minutiæ of structure for rapid aerial flight, and associate in flocks, &c.

The true reading appears to be that certain genera of each of the above families juts prominently towards the Motmots, these latter, in turn, inclining to the contrary dispositions. Thus it is hard to predicate of a family consisting of many members that they bear absolutely nearest relationship to another, the latter being as closely linked in an opposite direction. An explanation of these vagaries has been suggested by the theory of geographical representation, the Old-World Rollers, Bee-eaters, and Kingfishers, being represented in the American fauna by the Motmots, Jacamars, and Todies. This, however, leads to reflections away from the direct purport of the present communication*.

From my studies I look upon the Motmots, Tody, Kingfishers, Rollers, and Bee-eaters as a most natural assemblage, whereof one type of structural form is predominant. Skeletally they present a radical agreement; their pterylosis rests on a nearly uniform base, the soft parts of their anatomy are of a kind implying similarity of stock. With this stem to build a genealogical tree on, the branches and offshoots of necessity pursue multiform directions, and, where numerous and favoured by secondary influences, impress a character masking their original derivation and merging into that of neighbouring tribes. Blyth's arrangement of the *Syndactyli*, supported by the general organization of the birds so far as then known to him, is most excellent, although from his insertion of the Galbulidæ and separation of the Todidæ and Prionitidæ I dissent. Elsewhere I shall treat of their rank as a group cutting up Huxley's Coccygomorphæ, and in some points rather agreeing with the divisions adopted by Alph. Milne-Edwards. Meantime I restrict myself to bringing two families into juxtaposition, and succinctly noting their characters. If to these a term is necessary, Blyth's Serratirostres may be accepted.

The SERRATIROSTRES.

A section of the Syndactyle birds, composed of two families, and together possessing the subjoined attributes:—

The mandible denticulate; bill long, broadish, and tapering, but not deep; a few weak rictal vibrissæ; nostril roundish, bare, nearly basal; wings rather short and rounded; feathers with an after-plume; spinal tract without a space; tongue long and thin; stomach muscular; intestines with large cæca; palatal bars rounded posteriorly, and without spines; maxillo-palatines spongy, almost mesially united, and truncate behind; pterygoids short; bony nares large, oval; sternal keel moderately produced forwards, and anteriorly emarginate; coracoids relatively long; pelvis short and wide; humerus large in proportion to femur; calcaneal process of tarsus moderate-sized, and with a single perforation; vertebræ 35; food, chiefly insects; breed in holes, and lay white eggs; are solitary in habit or go in pairs.

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* There are other topics hinging on the natural history of the Momotidæ of an equally interesting kind, and well worthy of ventilation and discussion. Mr. Salvin, who drew my attention to Salvadori's genus and has otherwise tendered useful hints, surmises the possibility of a progenitor (*Momotus priscus*?) with 12 rectrices, and tells me of many circumstances in elucidation of geographical range, feather-spatulation, &c., which might cause me to modify opinions herein enunciated as to Momotine genera. On the other hand such conversation evokes latent thoughts of mine respecting ornitho-subdivisions and the physiological bearing of many subsidiary points. At all events, I trust he and other competent authorities on the group may supply a fresh chapter incorporating the latest data, be they subversive of my conclusions or the reverse.

All inhabitants of Tropical America.

Fam. MOMOTIDÆ.—Distinguished by:—a short or moderate tarsus; pronounced beak-serrations; premaxillaries greatly exceeding the length of skull behind; orbital septum almost entirely ossified; prefrontals broad; lachrymals diminutive or absent; temporal groove well marked and deepish; palate-rods of medium width; sternal notches converted into foramina; tongue terminally bifid, and laterally feathered; remiges 21; 10 or 12 graduated rectrices, short, moderate, or elongate, and two median occasionally spatulous. no caec

It possesses six reputed genera, which I am inclined to reduce to four.

Fam. TODIDÆ*.—Having a long tarsus; very diminutive mandibular serrations; premaxillaries only slightly exceeding skull's length behind; a very large interorbital space; prefrontals narrow; lachrymals of good size, their inferior limb reaching the jugal; temporal groove short and shallow; palate-rods narrow and slender; sternal fissures open; remiges 19; rectrices 12, and tail short and rounded.

Represented solely by the genus *Todus*.

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* Nitzsch's Todidæ comprises five families, and therefore is not equivalent to the present subdivision.

DESCRIPTION OF PLATES.

Plate XIII.

Illustrations of the bones of the cranium and shoulder-girdle of *Momotus lessoni,* of the natural dimensions.

Fig. 1. The inferior or palatal surface of the skull: *m x p,* maxillo-palatine.
Fig. 2. Upper cranial view: *n,* nostril or anterior nares, partially divided by a septum.
Fig. 3. The right quadrate bone, seen from the inside.
Fig. 4. The inferior articular knuckles of the same. The letters to this and the preceding figure are:—
o l, orbital limb; *i,* internal, *e,* external, and *p,* posterior knuckle for articulation with the lower jaw.
Fig. 5. Occipital facies of the skull: *p f,* postfrontal process.
Fig. 6. A profile view of the cranium without the mandible: *f,* fissure or cleft between the ethmoid and maxillary segments; *e p,* ethmoidal process; *f p,* prefrontal process; *z,* zygomatic process.
Fig. 7. Sternum and shoulder-girdle, from the side.
Fig. 8. The same, on its inferior surface.
Fig. 9. Partial view of the inside of the sternum, to show *r c,* rostral cavity or excavation.
Fig. 10. The head and tongue of *Momotus swainsoni* (*Prionites bahamensis,* Swain.), after Sir W. Jardine: *t,* tongue.

Plate XIV.

The skeleton of *Eumomota superciliaris.* Excepting figs. 30, 31, 40, and 41, all are drawn to natural scale.

Fig. 11. The pelvis, its interior surface.
Fig. 12. Dorsal aspect of the pelvis.
Fig. 13. A lateral view of the pelvis.
Fig. 14. Lower or pectoral surface of the sternum.
Fig. 15. The sternum in profile.
Fig. 16. A side view of the skull.
Fig. 17. The mandible, also seen laterally.
Fig. 18. Upper surface of the skull.
Fig. 19. Its inferior or basal aspect.
Fig. 20. Superior or oral superficies of the lower jaw.
Fig. 21. The right humerus, its posterior surface.
Fig. 22. Its upper articular end.
Fig. 23. Its lower articular end.
Fig. 24. The ulna and radius of the right side, fore and slightly outer view.
Fig. 25. Lower articular end of the same ulna.
Fig. 26. The metacarpal bones of the left wing, outer or exterior surface.

Fig. 27. Deep or flexor surface of the same bones.

Fig. 28. The anterior (thumb or radial) border of the metacarpus.

Fig. 29. Posterior or ulnar border of same.

Fig. 30. Upper or articular end of the left metacarpus, twice natural size.

Fig. 31. Its lower digital end, also enlarged to two diameters.

Fig. 32. The left femur, from behind.

Fig. 33. Right tibia (*t*) and fibula (*f*), their anterior surfaces.

Fig. 34. External or fibular side of the same tibia.

Fig. 35. Articular surface of its upper end.

Fig. 36. The lower articular extremity of the same.

Fig. 37. Tarso-metatarse of the left side, shown anteriorly.

Fig. 38. The inner or hallucial border of the same bone.

Fig. 39. The posterior aspect of the tarso-metatarse.

Fig. 40. Its superior articular extremity, magnified to two diameters.

Fig. 41. The inferior digital condyles of the tarsus, enlarged to twice the natural size.

PLATE XV.

Chiefly designed to show the characters of the feet, beak, and tongue-bones of different genera of the Motmots. All of exact natural proportions.

Fig. 42. Sole of the right foot of *Prionirhynchus carinatus*, with its cuticular covering &c.

Fig. 43. The bones of the right tarso-metatarse and foot of *Momotus* (*Baryphthengus*) *ruficapillus*. In this and fig. 42 the letters i, ii, iii, iv, respectively mark the great toe and successive digits.

Fig. 44. A segment of the base of the skull of *Momotus* (*Baryphthengus*) *ruficapillus*, to illustrate the presence of a small vomer (*vo*) lost or absent in the other forms examined: *m x p*, maxillo-palatine; *e p*, anterior ethmoidal process.

Fig. 45. A partial view of the upper or oral surface of the lower jaw of the preceding species of *Momotus*.

Fig. 46. Outside of the mandibular ramus of the same bird from the right.

Fig. 47. Tongue-bones or hyoidean arch of *M. ruficapillus*.

Fig. 48. The tongue-bones of *Eumomota superciliaris*.

In these two figures the individual osseous pieces are lettered as follows:—

g h, glosso-hyal; *b h*, basihyal; *u h*, uro-hyal; *c h*, cerato-hyal, and * its cartilaginous appendage; *t c*, tongue-cartilages.

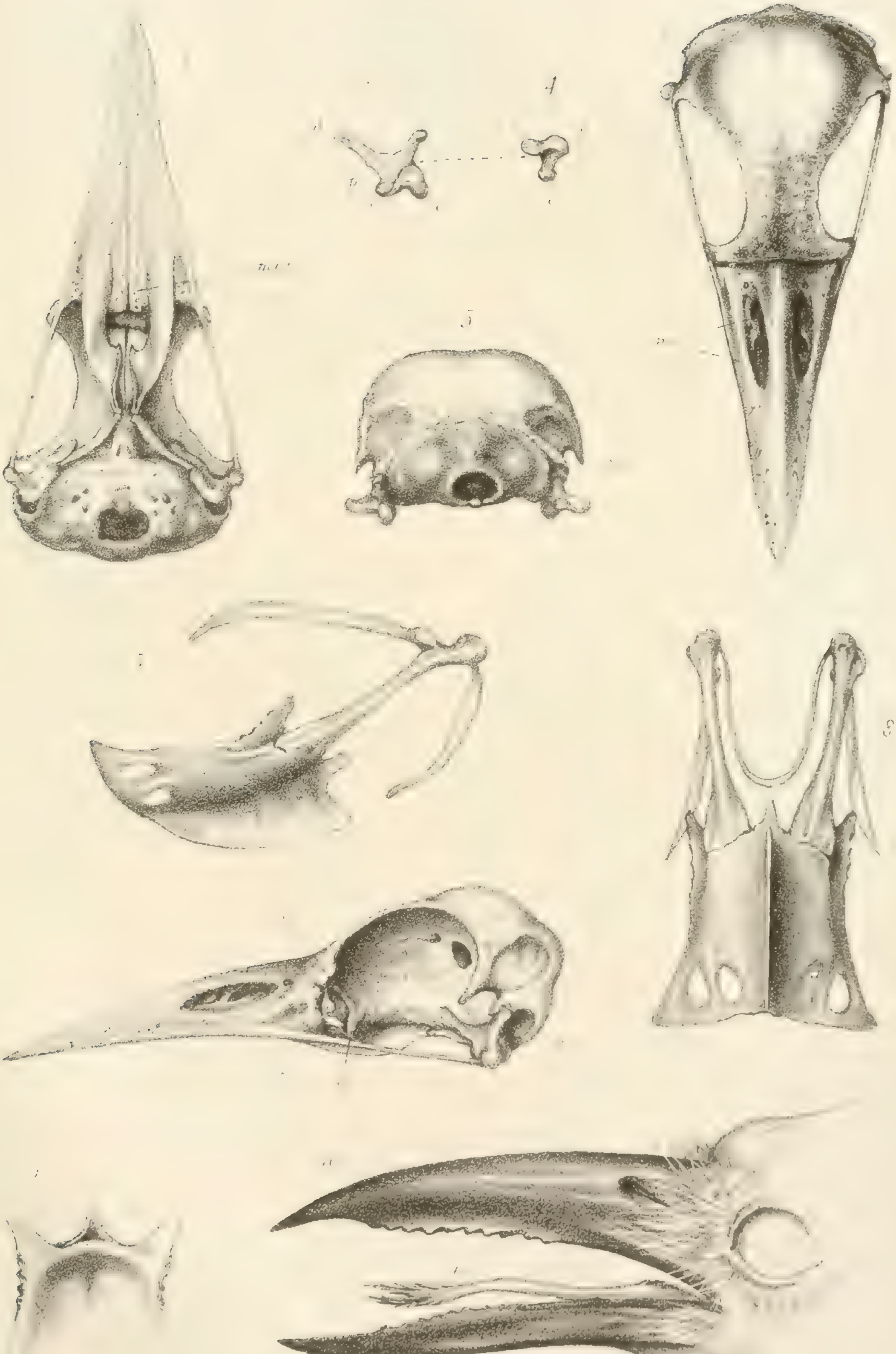
Fig. 49. Beak of *Momotus lessoni*, in side view and from above. Drawn from a specimen from Veragua.

Fig. 50. Similar views of *Hylomanes momotula*. From Vera Paz.

Fig. 51. Beak, laterally and superiorly, of *Eumomota superciliaris*. Specimen obtained at S. Pedro, Honduras.

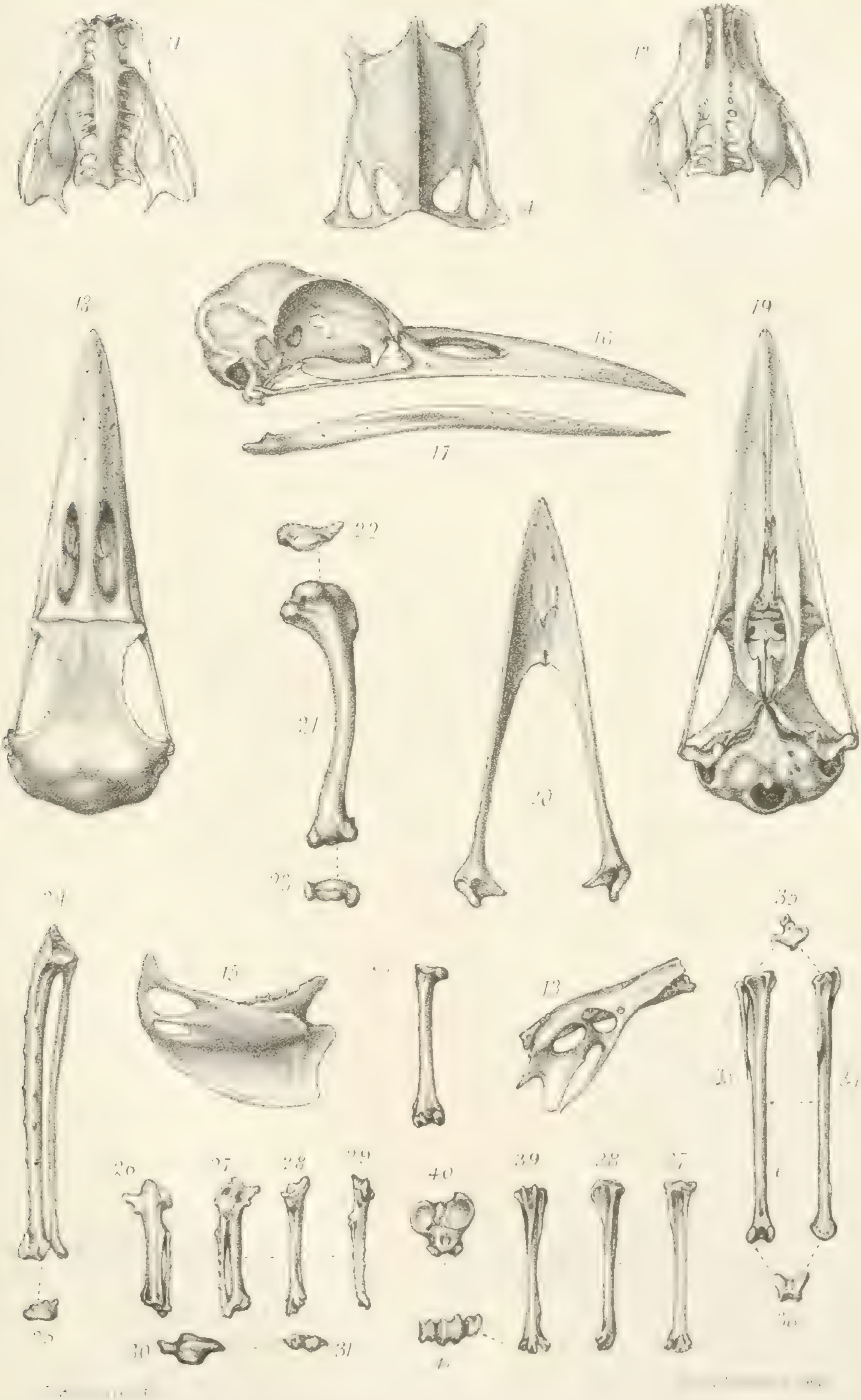
Fig. 52. Beak-surfaces of *Prionirhynchus carinatus*, from Guatemala.

J Murie.



M&N Hanhart imp.

MOMOTUS LESSONI.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EUMOMOTA SUPERCILIARIS.

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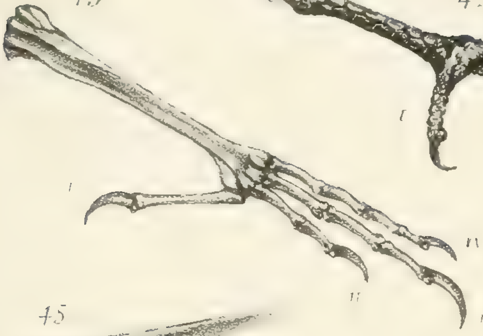

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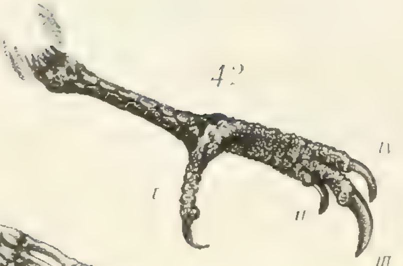

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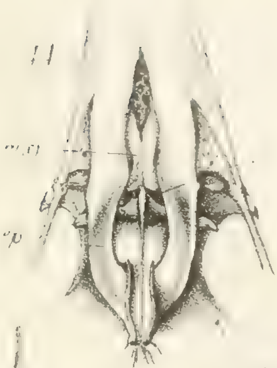

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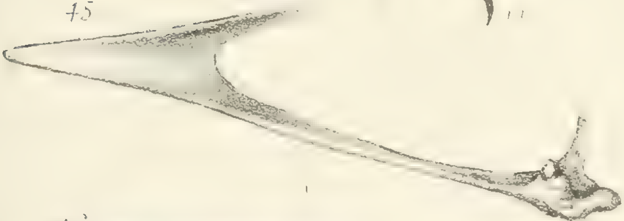

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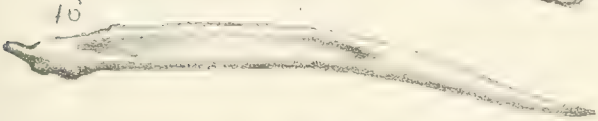

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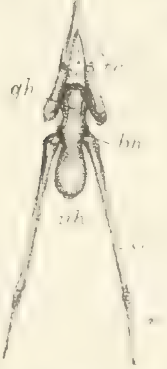

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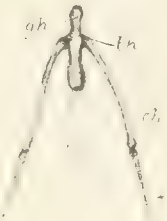

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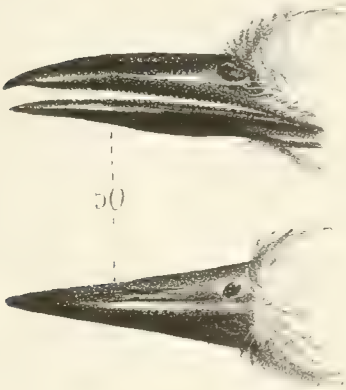

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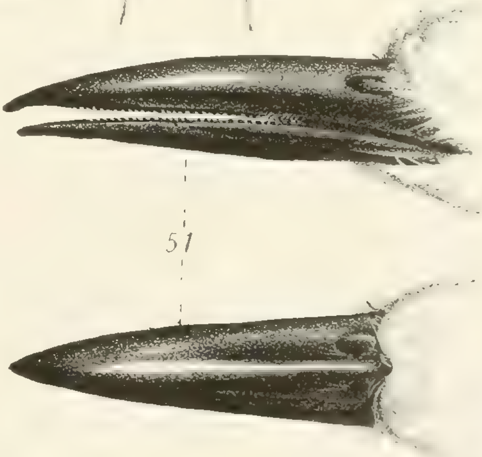

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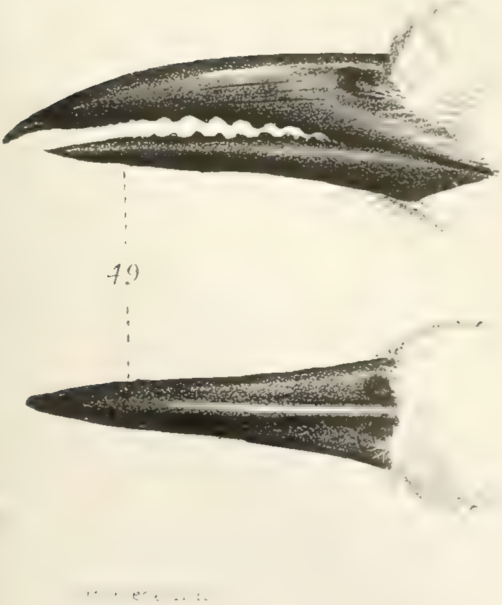

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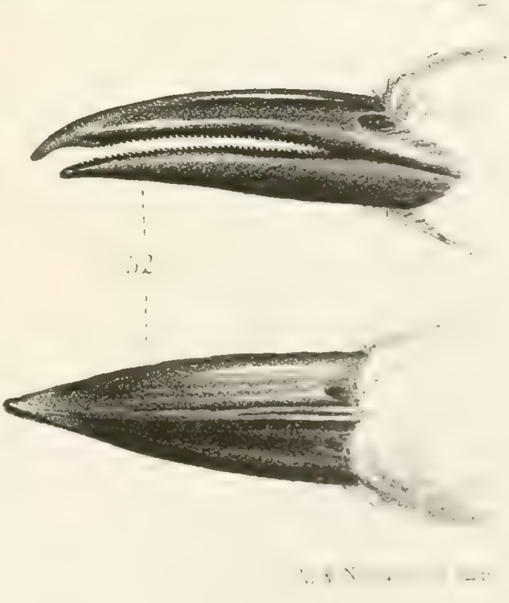

VARIOUS GENERA OF MOTMOTS

XLIV.—*Index to the Ornithological Literature of* 1871. By Osbert Salvin, M.A., F.Z.S. &c., and P. L. Sclater, M.A., Ph.D., F.R.S. &c.

Abbott, Charles C.

Notes on certain inland Birds of New Jersey. Am. Nat. iv. pp. 536–550 (1870).

Relates to certain changes in the Ornithological Fauna of New Jersey which have taken place during the last few years, and treats of the decrease in numbers of some species and the increase of others. The migrations of many species are commented upon.

Allen, J. A.

On the Mammals and Winter Birds of East Florida, with an Examination of certain assumed specific Characters in Birds, and a Sketch of the Bird-faunæ of Eastern North America. Bull. Mus. Comp. Zool. Harv. Coll. ii. pp. 161–450, t. iv–viii.

V. anteà, p. 189.

Anderson, A.

Notes on the Raptorial Birds of India. P. Z. S. 1871, pp. 675–690.

Gives copious notes on certain Indian Raptores, of which we have heard a good deal of late.

Anderson, John.

1. *On eight new Species of Birds from Western Yunan, China.* P. Z. S. 1871, pp. 211–215, t. xi.

The new species described are called *Suthora brunnea, Cisticola melanocephala, Suya superciliaris, Culicipeta tephrocephalus, Hypsipetes yunanensis, Bambusicola fytchi.* The names of the two remaining species had already been published as *Pycnonotus xanthorrhous* (P. A. S. B. 1869, p. 265) and *Phasianus sladeni.* With the last mentioned *P. elegans* of Elliot is identical.

2. *Extract of letter from.* Ibis, 1871, p. 371.

Refers to a collection of Persian birds acquired by the Calcutta Museum.

Arlt, Carl.

Notizen über den Flussrohrsänger (Sylvia fluviatilis) *und sein Vorkommen in der Nähe von Breslau.* J. f. Orn. 1871, pp. 27–34.

Notice of the occurrence of *Sylvia fluviatilis* in the neighbourhood of Breslau, in Silesia, where the author first observed it in 1865, and subsequently in several years. It arrives about the beginning of the second week in May, and breeds at the end of the same month.

Ayres, Thomas.

Additional Notes on the Birds of the Territory of the Trans-Vaal Republic. (Communicated by John Henry Gurney.) Ibis, 1871, pp. 147–157, 251–270, pl. ix.

A continuation of Mr. Ayres's and Mr. Gurney's papers on the ornithology of this district. There are several corrections in synonymy; and *Ardea rufiventris* is figured.

Ball, Mr.

Remarks on several Birds captured in the Red and Arabian Seas. P. A. S. B. 1871, p. 249.

Four species are mentioned.

Bello y Espinosa, Señor.

Zoologische Notizen aus Portorico. Zool. Gart. 1871, p. 348.

Dr. v. Martens has "freely translated" from the Spanish some notes of the above-named gentleman on the fauna of Porto Rico. A nominal list of birds is given; but it is obviously incomplete, and in many cases incorrect.

Bertaud, —.

Considérations relatives à la Théorie du vol des Oiseaux. Compt. Rend. lxxii. pp. 588–591 (1871).

Betant, A. H.

Notizen über Serinus pusillus, *Brandt.* J. f. Orn. 1871, p. 229.

Gives descriptions of the various stages of plumage of both sexes of this rare bird, based upon six examples obtained near Smyrna in the beginning of 1866.

BETTONI, EUGENIO.

Storia Naturale degli Uccelli che nidificano in Lombardia, ad illustrazione della raccolta ornitologica dei fratelli Ercole ed Ernesto Turati, scritta da Eugenio Bettoni, con tavole litografate e colorate prese dal vero da O. Dressler. 2 vols. fol., Milan.

This fine work is now complete in two volumes, and does great credit to the liberality and taste of the brothers Turati, at whose expense, we believe, it has been brought out. The volumes are dated 1865 and 1868; but the concluding parts have been only lately received—in this country at least.

BLANCHARD, EMIL.

Remarques sur la Faune de la Principauté Thibetaine du Moupin. Compt. Rend. lxxii. pp. 807–813 (1871).

Contains remarks upon Père David's recent zoological discoveries in this province of China.

BLANFORD, W. T.

1. *Description of a new Himalayan Finch,* Procarduelis rubescens. P. Z. S. 1871, pp. 693–695, t. lxxiv.

2. *Note on Colonel M'Master's List of Birds from Nagpore &c.* J. A. S. B. xl. part ii. 1871, pp. 216–217.

Calls attention to the interesting circumstance of the occurrence of several Malabar birds in the Gawilgarh Hills, as observed by Col. M'Master. Mr. Blanford enumerates eight species belonging to this category mentioned in Col. M'Master's list, and mentions parallelisms in the distribution of Land-shells.

3. *List of Birds collected or observed in the Wardha Valley and its vicinity, near Chanda.* J. A. S. B. xl. part ii. 1871, pp. 268–277.

This list is important, the specimens having been collected near to the boundaries of three of the subdivisions into which the author believes the fauna of India proper may be divided.

4. *Account of a visit to the Eastern and Northern Frontiers of Independent Sikim, with notes on the Zoology of the Alpine and Subalpine Regions.*—Part i. J. A. S. B. 1871, part ii. p. 367.

This part contains the narrative of Mr. Blanford's most interesting expedition, in which he was accompanied by Capt.

Elwes. Many birds are mentioned incidentally; but the notes on the fauna are reserved for Part ii.

5. *Notes on a collection of Birds from Sikim.* P. A. S. B. 1871, p. 215.

Abstract of a paper containing a description of a collection made in Sikim by Mr. L. Mandelli, together with a few notes on birds obtained by the writer. New species described are *Phylloscopus pallidipes*, *Pellorneum mandellii*, and *Propasser saturatus*.

6. *Account of a visit to the Eastern and Northern Frontiers of Independent Sikim, with notes on the Zoology of the Alpine and Subalpine Regions.*—Part ii. Zoology. P. A. S. B. 1871, p. 226.

Abstract of the second part of the memoir mentioned above (since published in full, J. A. S. B. 1872, part ii. p. 30). New species described are *Montifringilla ruficollis* and *Otocoris elwesi* (scribe *Otocorys*, ex *οὖς*, *ὠτός*, *auris*, et *κόρυς*, *galea*).

BOCAGE, J. V. BARBOZA DU.

1. *Mélanges Ornithologiques.* Jorn. Sc. Math. Phys. e Nat. no. xi. 1871, pp. 166–179.

This paper is divided into two parts: the first, entitled "*Description d'un Pélican apparemment nouveau d'Afrique occidentale et observations sur quelques espèces du même genre*," gives a redescription of *Pelicanus sharpii* (*cf.* Ibis, 1870, p. 422), with notes on other members of the genus. The second portion, "*Sur l'existence et l'habitat du* Francolinus rubricollis (*Lath.* nec *Rüpp.*)," gives a description of this species, and refers to it *Pternistes sclateri*, Boc. (*cf.* Zool. Rec. iv. 115). The species called *F. rubricollis* by Rüppell must now bear the name *F. leucoscapus*, Gray (List of Gallinæ, p. 48, 1867). The true habitat of *F. rubricollis*, Lath., is Mossamedes and Barra do Dande, to the northward of Loanda, in Western Africa. A list of the fourteen species of *Francolinus* contained in the Lisbon Museum is added.

2. *Mammiferos e aves do Transvaal offerecidos ao Museu de Lisboa pelo sr. F. Vanzeller.* Jorn. Sc. Math. Ph. e Nat. da Lisb. 1871, pp. 278, 279.

Contains a brief list of ten species of birds.

3. *Aves das possessões Portuguezas da Africa occidental.* Jorn. Sc. Math. Phys. e Nat. da Lisb. 1871, pp. 266–267.

This is Prof. Bocage's fifth list, wherein mention is made of 77 species of birds. *Falco cervicalis*, Licht ?, *F. biarmicus*, Temm., is fully described; and *Crateropus gutturalis* is characterized as a new species.

BORGGREVE, B.

Erster Nachtrag zu meiner Arbeit "Ueber die Vogel-Fauna von Nord-Deutschland." J. f. Orn. 1871, p. 210.

A supplement to the author's work on the Bird-fauna of Northern Germany, published at Berlin in 1869. It refers especially to remarks made in reviews of the work by Blasius (in Nordlinger's 'Kritischen Blättern,' vol. lii. p. 78), by Baron Ferd. v. Droste-Hülshoff (in the 'Bericht über die 18te Versammlung der deutschen Ornithologen-Gesellschaft zu Hannover und Hildesheim'), and by A. v. Homeyer (J. f. Orn. 1870, p. 214), but also gives additional information upon many species.

BREHM, A. E.

Zur Fortpflanzungsgeschichte des Purpurhuhns. J. f. Orn. 1871, pp. 34–39.

Contains an account of the breeding of *Porphyrio smaragnotus* of West Africa in the Berlin Aquarium.

BROOKE, SIR VICTOR.

Exhibition of a British specimen of the Esquimaux Curlew (Numenius borealis). P. Z. S. 1871, p. 299.

BROOKS, W. E.

1. *Notes on the Ornithology of Cashmir.* P. A. S. B. 1871, p. 209.

Abstract of a paper to be published in the Journal. Short characters are given of eight new species, namely:—*Sitta cashmirensis, Certhia hodgsoni, Dumeticola major, Horites pallidus, Phylloscopus tytleri, Motacilla cashmirensis, Alauda guttata,* and *Sturnus nitens.*

2. *Description of a new species of* Abrornis. P. A. S. B. 1871, p. 248.

"*Abrornis jerdoni*," the eastern representative of *A. xanthoschistus*; but no exact locality is given!

BRUHIN, TH. A.

Ueber Ankuft und Brutezeit einiger nordamerikanischen Zugvogel. Zool. Gart. 1871, p. 10.

Gives an account of the arrival and breeding-season of some of the regular summer visitants at New-Cöln, near Milwaukee (Wisconsin). The author is apparently not well acquainted with the scientific names of some of even the commoner species.

BULLER, WALTER.

1. *Critical notes on the Ornithological portion of Taylor's 'New Zealand and its inhabitants.'* Trans. N.-Zeal. Inst. 1870, pp. 11–14.

Mr. Buller writes to correct numerous errors in a list of New-Zealand birds published in a second edition of Mr. Taylor's work, which we have not seen.

2. *Notice of a species of Megapode in the Auckland Museum.* Trans. N.-Zeal. Inst. 1870, p. 14.

This notice refers to a note made by Capt. Hutton in 'The Ibis' (1869, p. 353), concerning a species of Megapode from "Nuipo, one of the Friendly Group." Mr. Buller gives a description of the bird, and after discussing the probabilities of its being one of several species the status of which does not seem to be well established, suggests that, if proved new, it should be called *Megapodius huttoni.* [*Cf.* HUTTON, F. W.]

3. *On* Zosterops lateralis *in New Zealand, with an account of its Migrations.* Trans. N.-Zeal. Inst. 1870, pp. 15–23, t. iii.

The first appearance of this bird, in the North Island at least, seems to date no further back than 1856. Whether the species migrated from the south or from Australia, Mr. Buller is not prepared to say. According to Dr. Finsch, the New-Zealand is identical with the Australian bird; but there seem to be grounds for doubting its *absolute* similarity. The Plate illustrates the head, foot, and wings of *Z. chloronotus* (fig. 1), after G. R. Gray, and the same portions of *Z. lateralis.* Judging from these figures it would appear that Mr. Buller had before him birds of two very different genera.

4. *On the Structure and Habits of the Huia* (Heterolocha gouldi). Trans. N.-Zeal. Inst. 1870, pp. 24–29, t. iv.

An interesting account of this singular bird, which seems destined speedily to become extinct (*cf.* Nature, June 23, 1870). The Plate shows the remarkable disparity which exists between the bill of the male and that of the female.

5. *Further notes on the Ornithology of New Zealand.* Trans. N.-Zeal. Inst. Inst. 1870, pp. 37–56, t. xii. *b.*

These notes are chiefly called forth by Dr. Finsch's criticisms on former ornithological papers of the author. Mr. Buller defends himself ably as regards many of his previous views. He gives an interesting and full account of several closely allied members of the genus *Nestor,* and finally pronounces his opinion that *Apteryx mantelli* of Bartlett will prove to be inseparable from *A. australis,* Shaw.

BURMEISTER, Dr. H.

Letter from, containing Remarks on the Cracidæ *in the Museum of Buenos Ayres.* P. Z. S. 1871, pp. 701, 702.

These remarks refer to certain species of Bolivia and the Argentine Republic mentioned in Sclater and Salvin's Synopsis of the *Cracidæ* (P. Z. S. 1870, pp. 504 *et seq.*).

CABANIS, Dr. J.

1. Locustella ochotensis *und* Phyllopneuste schwartzi. J. f. Orn. 1871, p. 156.

Dr. Cabanis remarks on these birds, and concludes that the former =*L. certhiola,* but that the latter is a valid species.

2. Parus cinctus *sive* sibiricus *and* P. obtectus. J. f. Orn. 1871, p. 237.

Dr. Cabanis remarks on these species and their differences.

COLLETT, ROBERT.

1. *Rugekasser for vore nyttige Smaafugle deres Indretning og Beboere.* Christiania: 1870. Post 8vo, pp. 36.

2. *Supplement til Norges Fugle og deres geographiske Udbredelse i Landet.* Vidensk.-Selsk. Forhandl. 1871, pp. 52–61.

A supplement to the list of Norway birds published in the same Journal for 1868. [*Cf.* Zool. Record, 1868, Aves, p. 39.]

3. *Ornithologiske Bemærkninger til Norges Fauna.* Særsk. Aftr. af Nyt Mag. f. Naturv. xviii. pp. 161–224 (1871).

Contains notes on Norwegian birds.

4. *On the Asymmetry of the Skull in* Strix tengmalmi. P. Z. S. 1871, pp. 739–743.

Illustrated by woodcuts of different aspects of the skull of this species.

Cooper, J. G.

The Fauna of California and its Geographical Distribution. Proc. Cal. Acad. Sc. 1870, p. 61.

Contains an instructive outline of the general features of the Californian fauna as regards the Vertebrates, and a list of species believed to be peculiar (birds 14). The author then proceeds to indicate the principal regions into which the State may be divided, each characterized by more or less peculiar species. These are:—

I. Colorado valley.
II. Desert region, westward of Colorado valley.
III. Southern coast-slope.
IV. Middle and northern coast-ranges.
V. Tulare valley, between 35° and 38° S. l.
VI. Southern Sierra Nevada.
VII. Sacramento valley.
VIII. Northern Sierra Nevada.

Cornély, Joseph M.

Reproduction et acclimatation du Talégalle d'Australie (Talegalla (Catheturus) lathami). Bull. Soc. d'Accl. 1871, pp. 528–536.

Coues, Elliott.

1. *Notes on the Natural History of Fort Macon, N. C., and Vicinity.* Proc. Ac. Phil. 1871, pp. 12–49.

The ornithological portion of this paper occupies considerably the larger portion of it, and contains field-notes on such species as came under the author's personal observation during two years' residence in this locality.

2. *Bullock's Oriole.* Am. Nat. v. pp. — (1871).

A very complete biography of *Icterus bullocki,* which came under the author's notice in Arizona and New Mexico.

Cox, T.

First Annual Report of the Geological Survey of Indiana. Indianapolis: 1869. 8vo, pp. 240.

Contains a list of the birds of Franklin County, Indiana, with a few notes appended to each species by Rufus Hammond, State Geologist.

CUNNINGHAM, ROBERT.

1. *Notes on the Natural History of the Straits of Magellan and West Coast of Patagonia, made during the voyage of H.M.S. 'Nassau' in the years* 1866, 1867, 1868, 1869. Edinburgh: 1870. 8vo, pp. 517.

Notes on the birds observed are scattered throughout the pages of this work. See the lists which have already appeared in this Journal. (Ibis, 1868, p. 183, 1869, p. 283, and 1870, p. 499.)

2. *Notes on some points in the Osteology of* Rhea americana *and* Rhea darwini. P. Z. S. 1871, pp. 105–110, t. vi., vi.*a.*

Shows several structural differences between these two species.

3. *On some points in the Anatomy of the Steamer Duck* (Micropterus cinereus). Trans. Zool. Soc. vii. pp. 493–501, plates lviii–lxii.

The osseous structure of this species is carefully investigated in this paper, as well as some of the internal organs—the tongue, trachea, and stomach being also figured.

DARWIN, CHARLES.

The Descent of Man, and selection in relation to Sex. 2 vols. London: 1871. Post 8vo.

Four chapters of the second volume of this remarkable work are devoted to birds and the wonderful diversity displayed in the structure, coloration, and habits of the sexes in this group of animals, or what Mr. Darwin calls secondary sexual characters. The necessarily brief limits of this notice do not permit us to enter into a consideration of any of the details brought forward by Mr. Darwin; suffice it to say that, whether we agree with his conclusions or not, a wide field of observation is here pointed out to ornithologists, the pursuit of which cannot but enlarge our knowledge of our special subject and increase its general interest.

DAVID, ARMAND.

1. *On two new Species of Birds from Moupin, Western Szechuen.* Ann. & Mag. N. H. ser. 4, vii. p. 256 (1871).

The two species described are called *Accentor multistriatus* and *Cinclosoma artemisiæ.*

2. *Catalogue des Oiseaux de Chine observés dans la partie septentrionale de l'empire* (*au nord du Fleuve Bleu*) *de* 1862 *à* 1870. Nouv. Arch. du Mus. (Bulletin), vii. pp. 3–14.

A list of 470 species, with the localities indicated where they were observed by Père David. There are also notes on five species, viz. *Ianthocincla artemisiæ, Allotrius xanthochloris,* Hodgs.*, *Alcippe cinerea, Paradoxornis guttaticollis,* and *Suthora conspicillata.*

DEGREAUX, L.

Études ornithologiques : Classification alaire. 8vo. Marseille : 1871. 5 plates.

The title of this work is all we have seen of it.

DODE, CHARLES.

Exhibition of, and remarks upon, Animals from the Amoor and Turkestan. P. Z. S. 1871, pp. 480–482.

Contains notes on *Passer ammodendri* and *Turdus mystacinus* of Severtzow's MSS.

DODERLEIN, PIETRO.

Avifauna del Modenese e della Sicilia. Fascicolo secondo, pp. 61–108 (Palermo, 1870); fasc. terzo, pp. 109–172 (1871).

These papers are extracted from the 'Giornale di Scienze Naturali ed Economiche," published in Palermo, the present numbers being in vols. vi. and vii. They bring the work down to the Glareolidæ. *Cf.* Zool. Record, vi. p. 33.

DOHRN, DR. H.

Beiträge zur Ornithologie der Capverdischen Inseln. Journ. f. Orn. 1871, pp. 1–10.

After noticing the previous authorities on the ornithology of the Cape-Verde group of islands, Dr. Dohrn gives a list of, with remarks on, twenty-one species observed by himself. *Calamoherpe brevipennis* is a new species, resembling *C. elaica* (Lind.) in colouring, but remarkable for its short wings. It was found by Dr. Dohrn on San Nicolas and Santiago.

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* Subsequently described by M. J. Verreaux as *A. sophiæ.* See VERREAUX.

DRESSER, H. E., see SHARPE, R. B.

DRESSER, H. E.

1. *Exhibition of rare European Birds' Eggs.* P. Z. S. 1871, pp. 102–104.

The eggs exhibited and described belonged to the following species:—*Micronisus brevipes, Motacilla citreola, Turdus fuscatus, Reguloides superciliosus,* and *Ruticilla aurorea.*

2. *Exhibition of a British specimen of the American Yellow-billed Cuckoo* (Coccyzus americanus). P.Z.S. 1871, p. 299.

DUBOIS, ALPH.

Conspectus systematicus et geographicus Avium Europæarum, Bruxellis: 1871. Large 8vo, pp. 35.

V. anteà, p. 187.

DYBOWSKI, DR.

Zur Fortpflanzungsgeschichte des Kuckuks. J. f. O. 1871, p. 393.

Dr. Dybowski, from his experiences in Dauria, comes to the conclusion that it is the mother Cuckoo (*Cuculus canorus*) which throws the foster-brethren of the young Cuckoo out of the nest. [But *cf.* Mrs. Hugh Blackburn (Nature, March 14, 1872) as a modern witness on this point.]

EDWARDS, ALPHONSE MILNE-.

Recherches anatomiques et paléontologiques pour servir à l'Histoire des Oiseaux fossiles de la France. Tome second. 4to, pls. Paris: 1869–71.

Last year saw the completion of this most important work, the progress of which has been regularly noticed in these pages. [*Cf.* Ibis, 1870, p. 510.] [See also Zool. Record, iii. p. 47, iv. p. 49, v. p. 36, vi. p. 29.]

The concluding chapters, as yet unnoticed, appear to commence with ch. xxix., which treats of the skeleton of the "Passeres," the various portions of which are illustrated on several plates, the subjects being chosen from living species. Chapter xxx. continues the consideration of the same groups with reference to fossil species. The following are described:—*Cryptornis* (gen. nov. *Bucerotidæ*?) *antiquus* (pl. 175); *Laurilliardia longirostris,* a new genus and species (near *Promerops*) (pl. 161. fig. 1). A new genus, *Palægithalus* (near *Parus* or *Parula*), is made for

Sitta (?) *cuvieri,* Gervais (pl. 161. fig. 2); *Corvus larteti* is described as a new species (pls. 151, 152). Also the following:—*Homalopus picoides,* a new genus and species (*Pícididæ*?) (pl. 178. figs. 15–31); *Necrornis palustris,* a new genus and species, allied perhaps to *Musophaga* (pl. 178. figs. 6–14); *Motacilla humata* (pl. 158. figs. 7–11, pl. 159. figs. 10, 11) and *M. major* (pl. 158. figs. 1–6, pl. 159. figs. 13, 14) are described as new species; also *Lanius miocænus* (pl. 159. figs. 1, 2, 3). A genus allied to *Upupa* is called *Limnatornis paludicola,* sp. n. (pl. 176. figs. 8–13). Two new Swifts are distinguished as *Cypselus ignotus* (pl. 177. figs. 9–13) and *Collocalia incerta* (pl. 177. figs. 1–8); and a new Trogon as *Trogon gallicus* (pl. 177. figs. 18–22); also two Woodpeckers as *Picus archiaci* (pl. 178. figs. 1–5) and *Picus consobrinus* (pl. 176. figs. 1–7). Chapter xxxi. treats of the Accipitres diurni in general; and in chapter xxxii. the following fossil species are described:—*Palæocircus cuvieri,* a new genus and species (pl. 185. fig. 16); *Palæohierax gervaisii* (pl. 183. figs. 1–10); *Aquila depredator* (lege *deprædator*), a new species (pl. 183. figs. 14–16, pl. 184. figs. 5–10, pl. 186. figs. 7–12); *Aquila prisca* (pl. 184. figs. 1–4, 11–13); *Milvus deperditus,* sp. n. (pl. 185. figs. 1–4); *Aquila minuta,* sp. n. (pl. 185. figs. 5–8); *Haliaëtus piscator,* sp. n. (pl. 185. figs. 9–11); and *Serpentarius robustus* (pl. 186. figs. 1–6). Chapter xxxiii. relates to the Striges in general, the following fossil species being described in chapter xxxiv.:—*Bubo avernensis* (pl. 192. figs. 10–23); *Bubo poirrieri* (pl. 192. figs. 24–29); and *Strix antiqua,* sp. n. (pl. 192. figs. 1–9). In chapter xxxv. the general structure of the Psittacidæ is considered; and in chapter xxxvi. *Psittacus verreauxii* (pl. 200) is described.

In the second part of the work (vol. ii. p. 529) the whole subject is summarized in six chapters; and the fossil remains of birds, from those of the Trias formation to the Dodo and Solitaire, shortly enumerated according to the strata in which they have been found.

ELLIOT, D. G.

1. *A Monograph of the* Phasianidæ *or Pheasants.* Parts ii., iii., iv., v. 1871. Published by the Author. [*Cf.* Ibis, 1870, p. 519.]

This grand work is now nearly complete. The four parts published last year contain illustrations of the following species:—*Lophophorus impeyanus, Pucrasia xanthospila, Phasianus reevesi, Euplocamus swinhoii, Gallus sonnerati, Phasianus shawi, Ceriornis temmincki, Polyplectron thibetanum, Ithaginis geoffroyi, Euplocamus ignitus, Pavo muticus, Polyplectron chalcurum, Numida meleagris, Numida plumifera.* Part iii. *Phasianus insignis, Argus giganteus, Phasianus versicolor, Euplocamus nobilis, Tetraophasis obscurus**, *Thaumalea picta, Euplocamus lineatus, Phasianus elegans, Meleagris ocellata, Ceriornis satyra, Euplocamus erythrophthalmus, Polyplectron bicalcaratum, Acryllium vulturinum, Numida coronata, Phasidus niger.* Part iv. *Phasianus mongolicus, Lophophorus sclateri, Ceriornis caboti, Euplocamus horsfieldi, Phasianus colchicus, Gallus varius, Phasianus wallichi, Euplocamus pyrrhonotus, Meleagris gallopavo, Phasianus formosanus, Ithaginis cruentus, Crossoptilon mantchuricum, Polyplectron emphanum, Numida granti.* Part v. *Meleagris mexicana, Phasianus decollatus, Crossoptilon drouyni, Gallus lafayettii, Phasianus torquatus, Euplocamus melanotus, Pavo cristatus, Ceriornis melanocephala, Thaumalea obscura, Pucrasia duvauceli, Euplocamus andersoni, Crossoptilon auritum, Numida cristata, Numida pucherani, Argus ocellatus, Argus bipunctatus.* The last two species are described from a few feathers only!

2. *Description of a new Genus and Species of Birds belonging to the Family* Fringillidæ. Ibis, 1871, pp. 402, 403, pl. xi.

The bird here described and figured is called *Dolospingus nuchalis.* It is allied to *Spermophila.* The specimen is said to have come from the Orinoco.

3. *Description of a new Species of Pheasant of the genus* Euplocamus *from Burmah, with a List of the known Species.* P. Z. S. 1871, pp. 137, 138.

The species described is called *Euplocamus andersoni,* increasing the number of known species, according to the author, to twelve.

4. *Description of an apparently new Bird of the Genus* Eurystomus, *with a List of the known Species.* Ibis, 1871, pp. 203, 204.

This supposed species was obtained by Mr. Wallace in the island of Waigiou; and Mr. Elliot calls it *Eurystomus waigiouensis.* Eight species of the genus are allowed.

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* This generic name is here used for the first time, but no characters are assigned.

5. *Review of the Genus* Ptiloris, *Swainson.* P. Z. S. 1871, pp. 580–583.

Four species are here recognized as belonging to this genus.

6. *Description of a supposed new Species of Guinea-fowl from Ugogo, Central Africa.* P. Z. S. 1871, p. 584.

This supposed new species is called *Numida granti,* the description being taken from a drawing made of a bird shot by Colonel Grant during his expedition with Capt. Speke.

7. *Description of an apparently new Species of Pheasant of the Genus* Argus. Ann. & Mag. N. H. ser. 4, viii. pp. 119, 120 (1871).

This species, called *Argus ocellatus,* is based upon four feathers in the Paris Museum from an unknown locality!

8. *Descriptions of two new Species of Humming-birds belonging to the Genus* Eupherusa *and* Cyanomyia. Ann. & Mag. N. H. ser. 4, viii. pp. 266, 267 (1871).

These species are called *Eupherusa poliocerca* and *Cyanomyia viridifrons.* Both are from Putla, in Western Mexico.

FINSCH, DR. OTTO.

Monographie der Gattung Certhiola. Verh. k.-k. zool.-bot. Gesell. Wien, 1871, t. iv. pp. 739–790.

A very complete monograph based upon a large series of specimens. Ten species are admitted, the undescribed name *C. clusiæ* of Paul v. Würtemberg being adopted for the Haitian species; another species, from the island of Cosumel, is referrred to (p. 790) as "*Certhiola caboti,* Baird, MS.," but is not described. The synonymy is carefully and fully worked out; every species is described, and the distribution of each traced. A map shows the latter (*cf.* Ibis, 1871, p. 476).

FLOWER, W. H.

On the Skeleton of the Australian Cassowary (Casuarius australis). P. Z. S. 1871, pp. 32–35.

A comparison of a skeleton of this species with that of *C. galeatus,* accompanied by a woodcut showing the skull of the former.

FRAUENFELD, GEORG RITTER VON.

1. *Der Vogelschutz.* Verh. k.-k. zool.-bot. Gesell. Wien, 1871, pp. 1149–1196.

Contains a list of European birds, with notes on each group as to their habits, food, &c., with reference to the question how far they should be protected by law during the breeding-season.

2. *Die Grundlagen der Vogelschutzgesetzes.* Wien: 1871.

Contains a reprint of the last paper, with introductory remarks.

FRITSCH, DR. ANTON.

1. *Naturgeschichte der Vögel Europa's.* 1 vol. 8vo, text (506 pp. and index); and Atlas, folio, 64 plates. Prag: 1871.

This work is now complete, the last part of plates bearing date 1871, the text 1870.

2. *Die Vögel Bohmens.* J. f. O. 1871, pp. 161–205, 305–313 *et* 378–392.

A somewhat abbreviated reprint of the portion of Dr. Fritsch's article on the vertebrata of Bohemia, lately published in the Archiv f. d. naturwissenschaftcliche Landesdurchforschung v. Böhmen, which relates to the birds of that country.

GEGENBAUR, C.

1. *Beiträge zur Kenntniss der Beckens d. Vögel.* Leipzig: 1871. 8vo, with three plates. Jen. Zeitschr. f. Med. u. Wiss. vi. p. 157.

An essay on the pelvis of birds and its component parts—worthy of the author's well-known reputation.

2. *Ueber die Nasenmuscheln der Vögel.* Leipzig: 1871. 8vo, with 3 plates.

This paper we have not met with.

GIGLIOLI, ENRICO HILLYER.

Note intorno alla Distribuzione della Fauna Vertebrata nell' Oceano prese durante un viaggio intorno al Globo 1865–68. Firenze: 1870. 8vo, pp. 96.

The portion of this work relating to the oceanic birds observed during the voyage of the Magenta occupies from p. 24 to p. 71, and treats chiefly of *Spheniscidæ* and *Procellariidæ.* Of the latter family the descriptions given in 'The Ibis' (1869, p. 61 *et seq.*) of *Puffinus elegans, Œstrelata trinitatis, Œ. magentæ, Œ. arminjoniana,* and *Œ. defilippiana* are reproduced. There are also notes on the *Laridæ* and *Pelicanidæ* observed, as well as one on *Chionis alba.* A map shows where each species mentioned was seen.

GILLIES, T. B.

On the occurrence of Footprints of the Moa at Poverty Bay. Trans. N. Z. Inst. 1871, pp. 127, 128.

Refers to a further examination of the footprints described by Archdeacon Williams [see WILLIAMS, W. L.].

GOEBEL, FORSTMEISTER H.

1. *Eine Reise von Petersburg nach Archangelsk über Twer, Taroslaw, Wologda und Ustguy.* J. f. O. 1871, pp. 20–27.

A short account of the author's journey from St. Petersburg to Archangel in the months of May and June, containing remarks on the birds observed on the way.

2. *Die in Jahren* 1867–9 *in Umanschen Kreise beobachteten Vögel.* J. f. O. 1871, pp. 130–151.

Continues and completes remarks on the birds observed in the Government of Kiew in 1867, 1868, and 1869. See J. f. O. 1870, pp. 440–456. The total number of species observed was 196.

GOODHUE, DANIEL.

Catalogue of, and Observations on the Birds of Vermont. Arch. Sc. & Trans. Orleans County Soc. Nat. Hist. i. pp. 102–105 (1871).

Only seven species are as yet mentioned in this paper, with brief notes upon them.

GOULD, JOHN.

1. *The Birds of Asia.* Part xxiii. London: 1871.

Mr. Gould's customary yearly part contains figures of the following species:—*Polyplectron chinquis, Perdix barbata, Pitta bengalensis, Pitta oreas, Psarópholus traillí, Psarópholus ardens, Otidiphaps nobilis, Accentor montanellus, Accentor rubidus, Accentor erythropygius, Zosterops simplex, Z. erythropleura, Parus venustulus, Staphida torqueola, Pterorhinus davidi.*

2. *The Birds of Great Britain.* Parts xix., xx. London: 1871.

Mr. Gould figures the following species in these parts, which bear the dates August and September 1871:—*Caprimulgus ruficollis, Machetes pugnax, Perdix cinerea, Fregilus graculus, Turdus atrogularis, Calamodyta aquatica, Carpodacus erythrinus, Cinclus melanogaster, Anser brachyrhynchus, Anser albifrons, Ægialitis minor, Nyroca ferina, Mareca penelope, Larus fuscus,* *Ciconia alba, Ciconia nigra, Numenius phæopus, Turnix africanus, Tetrao tetrix, Bubulcus russatus, Spatula clypeata, Ardetta minuta, Dryocopus martius, Oxylophus glandarius, Melanocorypha leucoptera, Emberiza rustica, Coturnix communis, Fuligula cristata, Gelochelidon anglica.*

3. *Exhibition of a Skin of Lady Rosse's Touraco* (Musophaga rossiæ). P. Z. S. 1871, p. 1.

4. *Descriptions of six new Humming-birds.* P. Z. S. 1871, pp. 503–505.

The species here described are called *Helianthea osculans, Heliangelus squamigularis, Heliomaster albocrissa, Lesbia chlorura, Eriocnemis russata,* and *Polytmus leucorrhous.*

5. *Description of a new Species of Fruit-Pigeon from the Fiji Islands.* P. Z. S. 1871, pp. 642, 643.

A beautiful species is here described as *Chrysœna victor.*

6. *On a new Species of Humming-bird belonging to the Genus* Spathura. Ann. & Mag. N. H. ser. 4, viii. pp. 61, 62 (1871).

This species is called *Spathura solstitialis.* It is from Ecuador.

7. *Description of two new Species pertaining to the Avifauna of Australia.* Ann. & Mag. N. H. ser. 4, viii. pp. 192, 193 (1871).

Xerophila pectoralis from Port Augusta and *Sternula placens* from Torres Straits are the names of two species here described.

8. *Description of a new Species of the Family* Pittidæ. Ann. & Mag. N. H. ser. 4, vii. p. 340 (1871).

This new species is from Borneo, and is called *Pitta* (*Phœnicocichla*) *arquata.* *Cf.* Birds of Asia, part xxiv.

GRAY, ROBERT.

The Birds of the West of Scotland, including the Outer Hebrides, with occasional records of the occurrence of the rarer species throughout Scotland generally. Glasgow: 1871. 8vo, pp. 520.

V. anteà, p. 184.

GRAY, GEORGE ROBERT.

1. *Hand-list of Genera and Species of Birds, distinguishing those contained in the British Museum.* Part iii. Struthiones, Grallæ, and Anseres, with indices of generic and specific names. London: 1871. 8vo, pp. 350.

The concluding portion of this valuable work [*cf.* Ibis, 1870,

p. 116; 1871, p. 439 *et anteà*, p. 340]. The indices occupy no less than 217 pages, and supply an almost indispensable want towards the completeness of the work, which would have been still further enhanced had the generic names been appended to the specific in the index to the latter.

2. *A Fasciculus of the Birds of China.* 1871 : pp. 8, t. i.–xii.

[*V. anteà*, p. 188.] The plates illustrate the following species:—*Myiophonus cæruleus, Hypsipetes leucocephalus, Collyrio schach, Acridotheres nigricollis, Sturnus sericeus, Coccothraustes melanura, Francolinus chinensis, Perdix thoracica, Eulabeornis striatus, Gallinula cristata, Querquedula formosa, and Q. falcata.*

3. *Note on* Ptilornis alberti. Ann. & Mag. N. H. ser. 4, viii. pp. 365, 366 (1871).

Refers to some remarks by Mr. Elliot upon a MS. name bestowed by Mr. Gray upon the North-Australian race of *P. magnificus.*

4. *On a new Species of* Caprimulgus. Ann. & Mag. N. H. ser. 4, viii. pp. 428, 429 (1871).

This refers to a fine Madagascar species to which the name *C. enarratus* is given. A species of *Cossypha*, also from Madagascar, is called *C. sharpii.*

5. *On a new Species of* Buceros. Ann. & Mag. N. H. ser. 4, viii. pp. 437, 438, pl. xvii. (1871).

This species (called *B. casuarinus*, and supposed to be from Western Africa), is based upon a head which is represented on the Plate.

GRAYSON, A. J.

Natural History of the Tres Marias and Socorro. Proc. Bost. Soc. N. H. 1871 *.

This paper, owing to the death of the author, was compiled and edited by Mr. Lawrence from Col. Grayson's notes. The notes themselves are full of interest, and contain both excellent observations of the physical features of the islands themselves and also field-notes respecting the birds found on them. Col. Grayson records 52 species of birds as inhabiting the Tres Marias, one of which appears to bear a new name, "*Chamæpelia pallescens*, Baird." Another is called "*Haliplana fuliginosa*, var. *crissalis,* Baird, MS." Only 13 species were found on Socorro, several of which appear, however, to be peculiar to that island. [*Cf.* LAWRENCE, G. N.]

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* Separate copy kindly forwarded by Mr. Lawrence.

GUNDLACH, Dr. JEAN.

Neue Beiträge zur Ornithologie Cubas. J. f. O. 1871, pp. 265–295, 353–378.

This "New Contribution to the Ornithology of Cuba," by the veteran ornithologist of that island, Dr. Gundlach, begins with a general review of prior labours on the same subject, commencing with MacLeay's article in the 'Zoological Journal' for 1827, and ending with the author's review of Cuban birds, published in Poey's 'Repertorio fisico-natural de la isla de Cuba' in 1865 and 1866. In the second portion (p. 353) Dr. Gundlach commences a further revised list of Cuban birds, with descriptions of their various plumages, notes on their habits, remarks on their synonymy, and proceeds to the end of the Raptores. [N.B.—*Gymnoglaux nudipes* (p. 376) should stand as *Gymnoglaux lawrencii,* Scl. et Salv. P. Z. S. 1868, p. 327.]

GURNEY, J. H.

1. Letter from. Ibis, 1871, p. 103.

Cuculus gularis (Ibis, 1859, p. 246) = *Cuculus canorus.*

2. Letter from. Ibis, 1871, pp. 247, 248.

The Egyptian *Gypaëtus* is probably *G. meridionalis.* Occurrence of *Haliaëtus albicilla* on Lake Menzalah, and notes on *Aquila imperialis, A. nævioides, A. nævia,* and *A. clanga.*

3. *Remarks on certain Species of Abyssinian Birds.* P. Z. S. 1871, pp. 147–149.

Some critical notes on Dr. Finsch's paper on Abyssinian birds in the Transactions of the Zool. Soc. vol. vii.

GURNEY, J. H. See AYRES, THOMAS.

GURNEY, J. H., Junr.

1. *On the Ornithology of Algeria.* Ibis, 1871, pp. 68–86, 289–301, plate iii.

Some useful notes on the birds of a now well-trodden field. Mr. Gurney penetrated into the Mzab country, and obtained many of the species found by Mr. Tristram during his well-known expedition. 141 species are mentioned; and at the end of the article the dates of arrival of several migratory birds in Algeria and England are given. The Plate illustrates *Parus ledoucii*.

2. *A Natural History Tour in Spain and Algeria.* Trans. Norf. & Norw. Soc. 1871, pp. 35-48.

The notes on birds in this paper are most of them included in the above.

HAAST, JULIUS.

1. *Moas and Moa-hunters.* Trans. N.-Z. Inst. 1871, pp. 66–107.

In this paper (divided into three parts) the author gives his reasons for assigning an earlier date than that sought to be fixed for the existence of the various species of *Dinornis* and its allies in New Zealand. His arguments are thus summed up in his own words:—

1. The different species of *Dinornis* or Moa began to appear and flourish in the Postpliocene period of New Zealand.
2. That they have been extinct for such a long time that no reliable traditions as to their existence have been handed down to us.
3. A race of autochthones, probably of Polynesian origin, was contemporaneous with the Moa, by whom these huge wingless birds were hunted and exterminated.
4. A species of Wild Dog was contemporaneous with them, which was also killed and eaten by the Moa-hunters.
5. They did not possess a domesticated dog.
6. This branch of the Polynesian race possessed a very low standard of civilization, using only rudely chipped stone implements, whilst the Maoris, their direct descendants, had, when the first Europeans arrived in new Zealand, already reached a high state of civilization in manufacturing fine polished stone implements and weapons.
7. The Moa-hunters, who cooked their food in the same manner as the Maoris of the present day do, were not cannibals.
8. The Moa-hunters had means to reach the northern island, whence they procured obsidian.

9. They also travelled far into the interior of this island to obtain flint for the manufacture of their primitive stone implements.
10. They did not possess implements of nephrite (greenstone).
11. The polishing process of stone implements is of considerable age in New Zealand, as more-finished tools have been found in such positions that their great antiquity cannot be doubted, and which is an additional proof of the long extinction of the Moa.

2. *Notes on* Harpagornis moorii, *an extinct Gigantic Bird of Prey, containing Descriptions of Femur, Ungual Phalanges, and Rib.* Trans. N.-Z. Inst. 1871, pp. 192–196, plates x., xi.

The bones here described were found with remains of *Dinornis,* five or six feet below the surface, in the swamp at Glenmark, which has already yielded Dr. Haast such a rich harvest. The author compares the bones with those of *Circus,* and conjectures that they belonged to a gigantic bird allied to the Harriers. From this he deduces that the Moas, upon which *Harpagornis* is supposed to have preyed, were diurnal in habits. Further excavations are being made; so we may hope soon to hear more of this remarkable form.

HALLEY, J. J.

A Monograph of the Psittacidæ, *or Parrot Family, of Australia.* *V. anteà,* p. 188.

HAMILTON, J. F.

Notes on Birds from the Province of Saõ Paulo, Brazil. Ibis, 1871, pp. 301–309.

Contains field-notes on forty-five species of birds collected by the author in Brazil.

HANF, P. BLASIUS.

Ornithologische Miscellen. Verh. k.-k. zool.-bot. Gesell. Wien, 1871, pp. 87–98.

Contains notes on various European birds.

HARTING, JAMES EDMUND.

1. *The Ornithology of Shakespeare. Critically examined, explained, and illustrated.* London: 1871. 8vo, pp. 321.

V. anteà, p. 185.

2. *Hints on Shore-shooting, with a Chapter on skinning and preserving Birds.* London: 1871. Post 8vo, pp. 88.

V. anteà, p. 185.

3. *Exhibition of, and Remarks on a Specimen of the so-called Sabine's Snipe* (Scolopax sabinii). P. Z. S. 1871, p. 39.

4. *Exhibition of a Red-breasted Goose* (Anser ruficollis, *Pallas*). P. Z. S. 1871, p. 102.

The specimen exhibited was stated to have been shot at Maldon, on the Essex coast.

5. *Catalogue of an Arctic Collection of Birds presented by Mr. John Barrow, F.R.S., to the University Museum at Oxford. with Notes on the Species.* P. Z. S. 1871, pp. 110–123.

This interesting collection is contained in forty-two cases, which Mr. Harting takes seriatim, giving notes on the birds in each. A specimen of *Eurinorhynchus pygmæus* in summer plumage, which has already furnished the subject of a Plate in this Journal (Ibis, 1869, p. 426, t. xii.), appears to be the rarest species in the collection. We notice that Mr. Harting calls the Black-throated Diver in case 22, from Behring's Straits, *Colymbus arcticus.* Is it not rather *C. pacificus* of Lawrence? The specimen in case No. 21, called *C. glacialis,* has already been ascribed to *C. adamsi* (*Cf.* Scl. P. Z. S. 1859, p. 201), which fact, whatever the validity of the species, ought not to have been passed over without comment.

HARTLAUB, G.

Bericht über die Leistungen in der Naturgeschichte der Vögel während des Jahres 1870. Wiegm. Arch. 1870, pt. ii.

Dr. Hartlaub's usual review of the ornithological literature for the year 1870.

HARTLAUB, G., and FINSCH, O.

On a Collection of Birds from Savai and Rarotonga Islands in the Pacific. P. Z. S. 1871, pp. 21–32, t. ii.

Thirteen species were contained in the collection from Savai, one of the Navigator Islands, and seven from Rarotonga, one of the Cook or Hervey group. Both are due to Mr. J. Cæsar Godeffroy's exertions in exploring the natural productions of the islands of the Pacific Ocean. A new genus, *Pareudiastes,* type

P. pacificus, sp. n., from Savai, is described and also figured. *Monarches dimidiatus, Aplonis cinerascens, Ptilinopus rarotongensis,* all from Rarotonga, are described as new species.

HECTOR, JAMES.

1. *On recent Moa Remains in New Zealand.* Trans. N.-Z. Inst. 1871, pp. 110–124, plates v.–vii.

Gives an account of the bones of a Moa chick found in an egg of some species of *Dinornis,* near Cromwell. See P. Z. S. 1867, p. 991. Also of a portion of the cervical vertebræ of a Moa, with parts of the skin and some feathers attached, which was found in a cave, with numerous other remains, at the foot of the Obelisk range of hills near Alexandra. Dr. Hector supports the view that the Moa survived until very recent times.

2. *On the Remains of a Gigantic Penguin* (Palæeudyptes antarcticus, *Huxley*) *from the Tertiary Rocks on the west coast of Nelson.* Trans. N.-Z. Inst. 1871, pp. 341–346, plates xvii., xviii.

The bones which furnished the subject for this paper were found in a ledge of rock forming part of the Seal Rock in Woodpecker Bay. They are attributed to the species described by Huxley as *Palæeudyptes antarcticus* in the Quarterly Journal of the Geological Society, vol. xv. p. 672.

HEUGLIN, TH. VON.

1. *Briefliches über eine Reise im europäischen Norden.* Journ. f. Orn. 1871, pp. 10–13.

Extracts from letters written during the author's journey along the Norwegian coast northward to Tromsö, containing remarks on birds observed.

2. *Die Vogel-Fauna im hohen Norden.* J. f. O. 1871, pp. 81–107.

Continues the observations on birds, made during the author's further journey through Finmark and Spitsbergen in 1870.

3. *Nachtrag zu meinem Bericht über die Ornithologie Spitzbergens.* J. f. O. 1870, p. 205.

Further remarks on some of the birds obtained in Spitsbergen, principally in reference to Prof. Newton's examination of some of the doubtful specimens, *e.g. Lagopus hemileucurus* and *Cepphus columba,* Heuglin, which last is not the true *C. columba.*

4. *Ueber die rothäugige Drossel* (*Turdus olivacinus,* Bp.). J. f. O. 1871, p. 206.

Describes minutely *Turdus olivacinus* of the Abyssian highlands, and distinguishes it from its southern representative *T. olivaceus.* The *Turdus olivacinus* of Rüppell and Hartmann, from the coast-region of Abyssinia and the Blue Nile, is not this species, but *Turdus pelios,* auct. (nec Bp.), which species ought to stand as *T. icterorhynchus* (*cf.* Cab. J. f. O. 1870, pp. 238–306), the true *T. pelios* being a Central-Asiatic species. [*Cf.* Ibis, 1871, p. 424].

5. *Ornithologie Nordost-Africas, der Nilquellen und Kuster-Gebiet des Rothen Meeres und des nördlichen Somal-Landes* (Fischer, Cassel). Lieff. 18, 19–30, 31.

We have seen up to the 30th and 31st Lieff. of this work; but, as the parts are not dated, we cannot say exactly what were issued in 1871. The first volume ends with Lieff. 22, 23, and contains pp. 852 and fifteen plates. Lieff. 24, 25 commence an Appendix, in which the author is assisted by contributions from Dr. O. Finsch. The birds (and eggs) figured in the seven parts are:—Tab. xx. *Nigrita arnaudi.* xxi. A. 1. *Xanthodina dentata*; 2. *X. pyrgita.* xviii. A. *Hyphantornis intermedia*; B. *H. tænioptera*; C. *H. vitellina*; D. *H. galbula*; E. *H. guerini.* xxxiii. *Limnetes crassirostris.* xiv. 1. *Turdus pelios*; 2. *T. olivacinus.* xlii. 1–3. *Textor alecto* (eggs); 4. *Hyphantornis habessinica*; 5. *H. atrogularis*; 6, 7. *H. guerini*; 8–12. *H. vitellina*; 13–17. *H. galbula.* xliii. 1. *Psalidoprocne pristoptera*; 2. *Hirundo æthiopica*; 3. *Nectarinia metallica*; 4–6. *Cisticola cursitans*; 7. *Drymœca gracilis*; 8. *Caprimulgus isabellinus*; 9, 10. *Cercotrichas erythroptera*; 11. *Argya acaciæ*; 12. *Saxicola isabellina*; 13–15. *Acrocephalus stentoreus*; 16, 17. *Aëdon galactodes*; 18. *Pycnonotus arsinoë.* ii. *Helotarsus ecaudatus.* iv. *Noctua spilogastra.* xxxvii. 1. *Vultur fulvus occidentalis*; 2, 3. *Falco concolor*; *Haliaëtus albicilla.* xii. 1, 2, 3. *Milvus forskalii* (*parasiticus*); 4, 5. *Bubo ascalaphus.* xii. B. *Saxicola scotocerca.* xxi. *Philagrus melanorhynchus.*

HOMEYER, E. F. VON.

Monographische Beiträge. Gennaia *und* Falco, *Kaup.* J. f. O. 1871, pp. 39–56.

A series of remarks on what the author considers the well-established species of these two divisions of *Falco*. He does not appear to have examined the Algerian Falcon referred by Salvin to *F. barbarus*, Linn., and well known to English collectors. *Falco babylonicus* is considered to be without doubt the young of *F. tanypterus* (i. e. *lanarius*, auct. plur.).

HORNE, C.

Letter from. Ibis, 1871, pp. 110–112.

On the breeding of *Mycteria australis* in India.

HUDSON, W. H.

1. *Tenth Letter on the Ornithology of Buenos Ayres.* P. Z. S. 1871, pp. 4–7.

Refers principally to the habits of *Larus cirrhocephalus.*

2. *Eleventh Letter on the Ornithology of Buenos Ayres.* P. Z. S. 1871, pp. 258–262.

A continuation of Mr. Hudson's valuable Notes.

3. *Twelfth Letter on the Ornithology of Buenos Ayres.* P. Z. S. 1871, pp. 326–329.

Treats of the Swallows (Hirundinidæ) of the neighbourhood of Buenos Ayres.

HUME, ALLAN.

1. *Stray Notes on Ornithology in India.* No. VI. *On certain new or unrecorded Birds.* Ibis, 1871, pp. 23–38.

The new species described are *Saxicola kingi* from Jodhpoor, *Acrocephalus macrorhynchus* from the Sutlej valley, and *Ploceus megarhynchus.* The other notes apply to skins determined and compared by Mons. J. Verreaux.

2. *Stray Notes on Ornithology in India.* No. VII. Ibis, 1871, pp. 403–413.

Record is made of the occurrence of *Otis tarda* and *Nyctea nivea* at Murdan. The following species are also described :—*Alauda adamsi* from Murdan, *Caprimulgus unwini* from Murdan, *Falco hendersoni, Galerida magna, Saxicola hendersoni, Trochalopteron simile, Podoces humilis, P. hendersoni, Suya albospecularis,* all from Yarkand ; also *Sturnus nitens* from Cashmere, the Peshawur valley, and Afghanistan, *Geocichla tricolor* from Hill Tipperah, and *Cygnus unwini* from the Peshawur valley.

Hutton, Frederick Wollaston.

1. *Catalogue of the Birds of New Zealand, with Diagnoses of the Species.* New Zealand: 1871. 8vo, pp. 85.

160 indigenous species are mentioned in this Catalogue, a very brief diagnosis being given of each. A list of 52 species is also given of birds introduced by European settlers. At the end of the volume a number of critical notes are added.

2. *On the Nests and Eggs of some Species of New-Zealand Birds.* Trans. N.-Z. Inst. 1871. pp. 111, 112.

Five species of birds furnish the materials for this paper, all but one of which are sea-birds.

3. *On the Microscopical Structure of the Eggshell of the Moa.* Trans. N.-Z. Inst. 1871, pp. 166, 167, pl. ix.

Capt. Hutton's observations lead him to the same conclusions as those of Nathusius, viz. that the eggshell of *Dinornis* is essentially struthious in its character, that of *Apteryx* departing widely therefrom. [*Cf.* Nathusius, W. v.]

4. *On some Moa Feathers.* Trans. N.-Z. Inst. 1871, p. 172, pl. ix.

The feathers of the Moa have long aftershafts like those of the Emu. Its eggshells are like those of Rhea, and thus show a rather closer relationship to the Australian and South-American forms of Struthiones than to the African.

5. *On the Sailing Flight of the Albatross. A Reply to Mr. J. S. Webb.* Trans. N.-Z. Inst. 1871, pp. 347–350.

A reply to certain criticisms upon Capt. Hutton's papers on this subject.

6. *On* Megapodius pritchardi, *Gray*; Megapodius huttoni, *Buller*. Trans. N.-Z. Inst. 1871, p. 165.

Contains an account of the specimen described by Mr. Buller. It was procured at Nuifo (=Niafu or Niufu, as written by Finsch), one of the Friendly group. Capt. Hutton refers it without much hesitation to *M. pritchardi* of Gray. [*Cf.* Buller, Walter.]

Jerdon, T. C.

Supplementary Notes to the 'Birds of India.' Ibis, 1871, pp. 234–247, 335–356, plate x.

These notes were intended to collect all the additional materials which had come to light since the author's 'Birds of India' was published, and to prepare the way to a second edition of that important work. On most of the species included in his work Mr. Jerdon had some additional information to impart. *Falco milvipes* is recognized as distinct from *F. sacer*. *Cypselus infumatus* is figured (plate x.).

JESSE, W. See LABOUCHERE, H. M.

JAYCOX, T. W., Jun.

'Cornell Era,' 8th Dec. 1871.

This communication we have not seen; but we gather its contents from a letter signed T. W. J. jr. in a Number of the same Journal dated 13th Jan., 1872. From the latter it would seem that a Grouse had been described as *Bonasa jobsi*, but was subsequently admitted to be a somewhat abnormal variety of *B. umbellus*.

KOCH, GOTTLIEB V.

1. *Synopsis der Vögel Deutschlands. Kurze Beschreibung aller in Deutschland vorkommenden Arten.* Heidelberg: 1871. Pp. 137, 8 pl.

See Zool. Gart. 1871, p. 316.

2. *Die Sänger Mitteldeutschlands. Abbildung und Beschreibung der mitteldeutschen Sylvien.* Nürnberg: 1870. 8vo, with eighteen plates.
3. *Die Stellung der Vögel.* Hefte 1, 2. Heidelberg: 1871. 8vo, with twenty plates.

We have seen neither of these papers.

KOSSMAN, ROBBY.

Ueber die Talgdrüsen der Vögel. Zeitschr. f. wiss. Zool. xxi. p. 568.

An essay on the structure and minute anatomy of the oil-gland of birds, without any special reference to classification. This singular organ, however, is very fully described, and excellent figures are given to show its form and mode of action.

KRIEGER, O. VON.

Buteo tachardus *sive* desertorum *zum zweiten Mal in Thüringen erlegt.* J. f. O. 1871, p. 109.

Records a (second) supposed occurrence of this recent addition to the European list in Thuringia in 1870. [But see Dr. Cabanis's opinion of these birds, J. f. O. p. 154, and p. 236.]

LABOUCHERE, H. M., and JESSE, W.

Bird-life. By Dr. A. E. Brehm. Translated from the German. London: 1871. Parts i., ii., iii. Large 8vo.

V. anteà, p. 193.

LANEN, —.

Domestication des Autruches au Cap. Bull. Soc. d'Accl. 1871, pp. 524–527.

LAWRENCE, GEO. N.

1. *Descriptions of new Species of Birds from Mexico, Central America, and South America, with a Note on* Rallus longirostris. Ann. Lyc. N. Y. x. pp. 1–21 (1871).

The new species collected on the Island of Socorro, the Tres Marias Islands, and at Mazatlan by the late Col. A. J. Grayson are here described, with the collector's notes, as follows, viz.:—from Socorro "*Harporhynchus graysoni*, Baird," "*Troglodytes insularis*, Baird," *Pipilo carmani*, *Conurus holochlorus*, var. *brevipes*, and *Zenaidura graysoni*; from the Tres Marias Is., *Parula insularis*; from Mazatlan, *Attila cinnamomeus*. The following species are described from other localities:—*Cistothorus æquatorialis* from Pichincha, Ecuador; *Hæmophila sumichrasti* from Juchitan (err. Tuchitan), Tehuantepec, Mexico; *Todirostrum superciliare* and *Elainea macilvainii* from Venezuela? *Empidonax fulvipectus* from the city of Mexico; *Trogon eximius* from Panama (= *T. chionurus*, nob., *cf.* Ibis, 1871, p. 468); *Chlorostilbon caribæus* from the island of Curaçoa; *Leptoptila bonapartii* from Mexico; and "*Vireosylvia magister*, Baird," from Belize, British Honduras.

2. *Descriptions of three new Species of American Birds, with a Note on* Eugenes spectabilis. Ann. Lyc. N. Y. x. pp. 137–140 (1871).

The species are *Mimus nigriloris* from Mexico, *Buarremon sordidus* from Bogota (which seems to be the young of *B. pallidinuchus* (Boiss.), and, as such, has long been in our collections; *cf.* Rev. Zool. 1840, p. 69), and *Serpophaga grisea* from Costa Rica.

3. *Descriptions of new Species of Birds of the Families* Troglodytidæ *and* Tyrannidæ. Pr. Acad. Phil. 1871, pp. 233–236.

A Wren is described as *Catherpes sumichrasti* from "Mata Bejuco," Vera Cruz, Mexico. The Tyrannidæ are *Myiozetetes grandis* from Tumbez, Peru (*cf.* P. Z. S. 1871, p. 753); *Empidonax atrirostris* from Venezuela? and *Myiarchus yucatanensis* from Yucatan (*cf.* Scl. P. Z. S. 1871, p. 84).

4. *Letter from.* Ibis, 1871, pp. 249–251.

Contains notes on the species of *Chrysotis* mentioned in Mr. Salvin's paper on Central-American Psittacidæ. [*C. farinosa* of Mr. Lawrence's Panama List is rightly determined; and is not *C. guatemalæ*, as here stated.]

5. *Letter from.* Ibis, 1871, p. 370.

Maintains the distinctness of *Porzana guatemalensis* from *P. concolor.*

6. *The Barnacle Goose.* Am. Nat. v. p. 10 (1871).

Records a second occurrence of this species on the American continent.

LAYARD, E. L.

1. *Letter from.* Ibis, 1871, pp. 102–107.

Contains notes on birds seen during a voyage from the Cape to England in 1870; also notes on some birds new to the fauna of S. Africa obtained in St.-Lucia Bay.

2. *Letter from.* Ibis, 1871, pp. 107–109.

Contains some remarks on *Schizorhis concolor* by Dr. Exton.

3. *Notes on South-African Ornithology.* Ibis, 1871, pp. 225–230.

These notes refer chiefly to a collection made by one of Mr. Layard's correspondents, Dr. Exton. A new *Barbatula* is called *B. extoni.*

LEGGE, W. VINCENT.

1. *On the second Species of* Zosterops *inhabiting Ceylon.* Journ. Ceylon Branch, R. A. S. 1870–1.

2. *Further notes on the Ornithology of Ceylon.* Ibid.

We only know the titles of these papers.

LENGLIER, CH.

Les couveuses Dubus et Deschamps. Bull. Soc. d'Accl. 1871, pp. 118–129.

LEWIS, GRACE ANNA.

The Lyre-bird. Am. Nat. iv. pp. 321–331 (1870). Woodcuts.

A popular account of *Menura superba,* the structure of the tail-feathers being illustrated by woodcuts.

M'MASTER, Lieut.-Col. A. C.

Notes on Birds observed in the Neighbourhood of Nagpore and Kamptee (Central Provinces), Chikalder and Akola in Berar. J. A. S. B. 1871, pt. ii. p. 207.

A series of "rough notes taken during hunting- and shooting-trips from Kamptee," relating to sixty-seven species named after Jerdon's 'Birds.'

MAGNUS, Dr. HUGO.

Bemerkungen über den Bau des knöchernen Vogelkopfes. Zeitschr. f. wiss. Zool. xxi. p. 1 (108 pp., 6 tabb.).

A full and laborious essay upon the various elementary bones that enter into the composition of the bird's cranium, illustrated by six cleverly drawn plates. The author seems not to have had a very extensive collection to work upon, and does not go very deeply into variations bearing upon classification. It does not appear that he is acquainted with Prof. Huxley's classification of birds by the bones of the palate (P. Z. S. 1867, p. 415 *et seqq.*).

MAIRET, ALEXANDRE.

Educations d'Oiseaux faites à la Faisanderie du Château de Ferrières en 1870. Bull. Soc. d'Acc. 1871, pp. 593–596.

Concerns the breeding of certain Pheasants, *Rhynchotis rufescens,* and a few other species of birds.

MARCHANT, L.

Catalogue des Oiseaux de la Côte d'Or. Paris: 1870. 8vo, pp. 92.

We have not seen this work.

MARSHALL, W.

Sur les Plumes caudales allongées des Oiseaux de Paradis. Arch. Néerland. d. Sc. Ex. et Nat. vi. p. 296.

A short essay on the mode of development of the ornamental plumes of the Birds of Paradise, and the variations of these plumes according to age and sex.

Marshall, C. H. T. and G. F. L.

A Monograph of the Capitonidæ *or Scansorial Barbets.* London: 1871.

[*Cf.* Ibis, 1871, p. 451.]

Parts VI. to IX. bring this work to a conclusion. Their contents are:—

Part VI. *Pogonorhynchus rolleti, P. diadematus, P. melanocephalus, Megalæma inornata, Gymnobucco bonapartii, Xantholæma malabarica, Barbatula bilineata, B. atroflava,* and *Capito versicolor.*

Part VII. *Xantholæma rosea, Megalæma javensis, M. mystacophanes, M. humii,* and *M. franklini, Tetragonops rhamphastinus, Gymnobucco calvus,* and *Xylobucco scolopaceus.*

Part VIII. *Megalæma armillaris, M. chrysopsis, M. corvina, Pogonorhynchus vieilloti, P. leucomelas, Capito richardsoni, C. niger,* and *C. auratus.*

Part IX. *Pogonorhynchus melanopterus* and *P. undatus, Barbatula leucolæma, B. pusilla, B. subsulphurea, B. chrysocoma, B. uropygialis, Capito glaucogularis, C. quinticolor, Megalæma lagrandieri, M. duvauceli,* and *M. cyanotis.*

Melliss, J. C.

Letter from. Ibis, 1871, pp. 367–370.

Describes the various attempts to introduce several species of birds into the Island of St. Helena.

Meyer, Adolf Bernhard.

Briefliches über Merops forsteni. J. f. O. 1871, p. 231.

Announces the collection of specimens of both sexes of this rare species, near Rurukan in Northern Celebes. It had not been previously met with since its discovery by Forsten in 1840.

Mivart, St. George.

On the Genesis of Species. London: 1871. Small 8vo, pp. 296.

Though Mr. Mivart illustrates his arguments but sparingly by reference to birds, his book has such an important bearing on the wide subject of which our science is only a branch, that we have no hesitation in including its title in the present 'Index.' Some of the woodcuts representing Birds of Paradise, from Mr.

Wallace's 'Malay Archipelago,' are reproduced in chapter iii., on "independent similarities of Structure."

Möbius, Dr. K.

Ein Besuch der Insel Sylt in Mai 1871. Zool. Gart. 1871, p. 193.

On the 29th of May last year Dr. Möbius visited the breeding-place of *Sterna caspia* on the north-eastern promontory of Sylt, called the "Ellenbogen." The colony consisted of 17 nests. In 1819 Naumann reckoned it at 300, Fr. Boié subsequently at 200.

Murie, James.

1. *On the Dermal and Visceral Structures of the Kagu, Sun-bittern, and Boatbill.* Trans. Zool. Soc. vii. pp. 465–492, plates lvi., lvii. (Read May 9, 1867; published June 1871).

An important contribution to our knowledge respecting these structures in *Rhinochetus jubatus, Eurypyga helias,* and *Cancroma cochlearia.*

2. *Additional note concerning the Powder-downs of* Rhinochetus jubatus. P. Z. S. 1871, pp. 647–649.

Gives a table of equivalents of the areas treated of by Nitzsch and the author.

3. *On the Sternum and Viscera of Pel's Owl* (Scotopelia peli, *Temm.*). Journ. Anat. & Phys. vi. pp. 170–175, t. xi. (1871).

These notes are drawn up from an examination of portions of the body of a specimen of this rare species which lived for some time in the Gardens of the Zoological Society, and which furnished the subject for plate xv. in the first volume of this journal. The skin is now mounted in the Norwich Museum. Dr. Murie's final remarks bear upon the value of the genus and its position amongst the family of Owls.

Murison, W. D.

Notes on Moa-remains. Trans. New-Zeal. Inst. 1871, pp. 120–124.

Refers to the vexed question as to the probable date of the extirpation of *Dinornis.*

NATHUSIUS, W V.

1. *Die Structur des Vogeleies und deren Beziehungen zur Systematik.* J. f. O. 1871, p. 241.

A *résumé* of the several memoirs on the microscopical structure of the bird's egg, and on its importance in classification, which the author has recently contributed to the 'Zeitschrift f. wissenschaftl. Zoologie (vols. xviii. to xxi.). See Ibis, 1871, p. 454. The conclusion arrived at is that a well-defined type of egg-shell structure belongs to certain families of birds, and renders them easily recognizable on examination of the egg-shell under the microscope. In some cases specific differences are also apparent, *e. g.* between *C. olor* and *C. musicus,* and between *Anser cinereus* and *A. segetum.*

2. *Ueber die Eischalen von* Æpyornis, Dinornis, Apteryx *und einigen Crypturiden.* Zeitschr. f. wiss. Zool. xxi. p. 330.

Contains the results of the author's microscopical examination of the egg-shells of *Æpyornis, Dinornis, Apteryx,* and certain species of Tinamous. His conclusions are:—

1. A decided approach in *Æpyornis* to Struthionine characters, and distinctness from those of the larger Accipitres.

2. A confirmation of the Struthionine characters of *Dinornis* already pointed out in a previous memoir.

3. The entire distinctness of the Tinamous (in the characters of their egg-shell) from the typical Gallinæ.

4. The resemblance of these characters in *Apteryx* to those of *Grus* and *Otis,* and (rather less so) to those of the Tinamous.

NEWTON, ALFRED.

1. *A History of British Birds by the late William Yarrell, V.P.L.S., F.Z.S.* Fourth edition. Parts i. & ii. 8vo. London: 1871.

A revised edition of this important text-book, a large part of which has been re-written, and the whole most judiciously enlarged and corrected, so as to render the work complete up to the present date. Part ii. brings the work partly through the Owls.

2. *Letter from.* Ibis, 1871, p. 249.

Relates to the probable distinctness of *Lagopus hemileucurus* from *L. rupestris.*

3. *On some new or rare Bird's Eggs.* P. Z. S. 1871, pp. 55–58, t. iv.

Contains descriptions of fourteen species of eggs of considerable interest, eight of which are figured, viz. those of *Numenius borealis, Calidris arenaria, Numenius hudsonicus, Larus franklini, Xema sabinii, Chroicocephalus philadelphia, Chionis minor,* and *Theristicus melanops.*

4. *Exhibition of some rare European Bird's Eggs.* P. Z. S. 1871, pp. 546–547.

Contains a note on supposed eggs of the Sanderling (*Calidris arenaria*) collected by the German North-Polar Expedition.

5. *On a Remarkable Sexual Peculiarity in an Australian Species of Duck.* P. Z. S. 1871, pp. 649–651.

The bony enlargement of the trachea is observed to exist in both sexes of *Anas punctata,* though the form differs slightly in each sex. The term *Virago* is suggested for the group presenting this peculiarity. Woodcuts of the trachea and posterior end of the sternum of both sexes are given.

6. *Exhibition of the Humerus of a Pelican from the Cambridgeshire Fens.* P. Z. S. 1871, p. 702.

7. *On certain Species of* Falconidæ, Tetraonidæ, *and* Anatidæ. Proc. Ac. Phil. 1871, pp. 94–100.

Relates to *Falco gyrfalco* and its allies, the different species of Grouse allied to *Lagopus albus,* and to *Anser ferus* and its allies.

8. *On a Method of Registering Natural-History Observations.* Trans. Norf. & Norw. Soc. 1871, pp. 24–34.

A fac-simile sheet, as formerly used by the author, shows the method employed, which, if kept during a series of years by a competent observer constantly resident in the country, could hardly fail to produce some interesting and perhaps some unexpected results. The observations, we need hardly say, apply chiefly to birds.

NICHOLSON, HENRY ALLEYNE.

A Manual of Zoology for the use of Students, with a general Introduction on the Principles of Zoology. Edinb. & London: 1871. 2nd ed., small 8vo.

Six chapters are devoted to the consideration of the Class Aves.

NINNI, A. P.

Catalogo degli Uccelli del Veneto. i.–iii. Accipitres, Passeres, Columbæ, Grallæ et Palmipedes. Venezia: 1868–70. 8vo.

This work, referred to by Doderlein (*op. suprà cit.*), we have not seen (*cf.* Zool. Rec. 1869, p. 36).

NORDVI, A. G.

Anas stelleri *in Europa brütend.* J. f. O. 1871, p. 208.

Notice of the discovery of this Duck breeding on the northern coast of Russian Finmark, in the month of June.

OGDEN, J. A.

Synopsis of the Genus Chettusia (Lobivanellus), *with a Description of a new Species.* Pr. Ac. Phil. 1871, pp. 194–196.

The author recognizes sixteen species of this genus, including *Chettusia nivifrons*, which he describes as new. [But *cf.* Finsch, *ibid*, 1872, p. 32.] It is said to be from "Fazoglow" [Qu. Fazoklo, in Abyssinia?]. Specimens of all but four of the species under review are in the Museum of the Academy of Philadelphia.

ORDE, J. W. P.

Letter from. Ibis, 1871, p. 112.

On a Quail's nest in North Uist.

ORTON, JAMES.

1. *Notes on some Birds in the Museum of Vassar College.* Am. Nat. iv. pp. —.

These notes apply chiefly to the type specimens of birds contained in the Vassar-College Museum. The types described by Giraud in his "Sixteen new Birds from Texas" were formerly in this collection, but have now passed into that of the Smithsonian Institution. The remaining notes refer to birds recently described by Mr. Lawrence.

2. *On the Condors and Humming-birds of the Equatorial Andes.* Ann. & Mag. N. H. ser. 4, viii. pp. 185–192.

Contains an account of *Sarcorhamphus gryphus* and of various species of Humming-birds found in Ecuador.

OWEN, Professor.

1. *On* Dinornis (Part xv.): *containing a Description of the*

Skull, Femur, Tibia, and Metatarsus of Aptornis defossor, *Owen, from near Oamaru, Middle Island, New Zealand; with additional Observations on* Aptornis otidiformis, *on* Notornis mantelli, *and* Dinornis curtus. Trans. Zool. Soc. vii. pp. 353–380, plates xl.–xliv. (Read Mar. 10, 1870, published January 1871.)

2. *On* Dinornis (Part xvi.): *containing notices of the Internal Organs of some Species, with a description of the Brain and some Nerves and Muscles of the Head of the* Apteryx australis. Trans. Zool. Soc. vii. pp. 381–396, plates xlv.–xlvii. (Read May 26, 1870; published Jan. 1871)

These papers are further contributions to Prof. Owen's well-known series on *Dinornis.* In the first cited the author expresses his long-entertained hopes of receiving the materials for a monograph of *Notornis* before that fast-disappearing form finally departs from amongst living birds. In this hope we cordially concur. It is in this Ralline form, rather than in *Dinornis,* that *Aptornis* will perhaps find its nearest ally.

In the second paper the author gives notes upon the brain, cerebral nerves, and cranial capacity of *Apteryx,* on the brain of *Dinornis,* on the tracheæ of *Apteryx, Struthio,* and *Casuarius,* on the trachea and larynx of *Dinornis crassus,* on the tracheæ of *Dinornis rheïdes?, Dinornis elephantopus?, D. ingens?, D. robustus?,* and *Aptornis defossor,* and on the muscles of the mandible and hyoid of *Apteryx.*

3. *On the Dodo* (Part ii.). *Notes on the articulated Skeleton of the Dodo* (Didus ineptus, *Linn.*) *in the British Museum.* Trans. Zool. Soc. vii. pp. 513–525, plates lxiv.–lxvi. (Read April 18, 1871; published Nov. 1871.)

In this paper Prof. Owen reviews Messrs. A. & E. Newton's memoir "On the Osteology of the Solitaire" (Phil. Trans. 1869, p. 327 *et seqq.*), and institutes many comparisons between the structural peculiarities of the Dodo and *Pezophaps solitaria.* We remark that he seems to admit of the specific distinction of *P. minor,* of Strickland, from the last-mentioned bird, the view taken by the Messrs. Newton being that the remarkable difference in size between the remains of the largest and smallest specimens was simply sexual and not specific.

PELZELN, AUGUST VON.

1. *Ueber die durch Herrn Baron E. v. Ransonnet von der ost-asiatischen Expedition eingesendeten Säugethiere und Vögel.* Verh. k.-k. zool.-bot. Gesell. Wien, 1871, pp. 99–102.

The birds mentioned in this list are not numerous. They are from the coast of China and Japan, Saigon, Malacca, and a few other localities.

2. *Ein Beitrag zur ornithologischen Fauna der österreichisch-ungarischen Monarchie.* Verh. k.-k. zool.-bot. Gesell. Wien, 1871, pp. 689–730.

A useful list, accompanied with many notes on the species of birds found in the Austro-Hungarian Monarchy. The specimens contained in the Imperial Cabinet are also mentioned under each species.

PETTIGREW, JAMES BELL.

On the Physiology of Wings; being an Analysis of the Movements by which Flight is produced in the Insect, Bat, and Bird. Proc. Roy. Soc. Edinb. 1870–71, pp. 336–350.

POTTS, T. H.

1. *On the Birds of New Zealand.*—Part ii. With Illustrations. Trans. N.-Zeal. Inst. 1870, pp. 59–109.

Thirty species are treated of in this article, with special reference to their breeding-habits. Outline sketches illustrate the nesting-places of several species, as mentioned below:—Plate ix. is a sketch of an eyry of *Falco novæ-zelandiæ*; on plate xii. are figured the nests of *Zosterops lateralis* and *Pogonornis cincta*; plate xi., the nests of *Petroica albifrons* and *Mohoua albicilla*; plate viii., nests of *Rhipidura flabellifera* and *Podiceps rufipectus.* On plate vii. we find illustrations of the nesting-places of *Nestor meridionalis* and *Ocydromus australis.* Plate vi. represents the heads of *Anarhynchus frontalis,* adult and chick (see P. Z. S. 1870, p. 673), and *Charadrius bicinctus.* Plate x. gives a representation of a nest of *Porphyrio melanotus* and the surrounding herbage. The notes appear to be full of interesting observations.

2. *Notes on an Egg of* Alca impennis, *Linn., in the Collection of the Writer.* Trans. N.-Zeal. Inst. 1870, pp. 109, 110.

These notes seem to apply to the Great Auk in general rather than to the particular egg in Mr. Potts's collection. It would appear, too, that he has two of these much-prized eggs, having once been the fortunate possessor of no less than three, one of which he sold in 1853 for £30.

3. *Notes on a new Species of Rail,* Rallus pictus (Painted Rail). Trans. N.-Zeal. Inst. 1871, pp. 202, 203.

4. *Note on a new Species of Gull,* Larus (Bruchigavia) bulleri, *Potts.* Ibid. pp. 203, 204.

5. *Notes on a new Species of* Apteryx (A. haastii, *Potts*). Ibid. pp. 204, 205.

These papers (published May 1872) have already appeared in an article in this Journal, entitled "Notes and Descriptions of some Birds lately added to the Museum, Canterbury, New Zealand" [*anteà,* pp. 35–39 (Jan. 1872)].

PURDIE, A. C.

On a supposed new Species of Duck. Trans. N.-Zeal. Inst. 1871, p. 213.

This supposed new species is pronounced by Dr. Hector to be *Dendrocygna eytoni,* Gould.

RADCLIFFE, E. DELMÉ.

Letter from. Ibis, 1871, pp. 363–367.

Chiefly relates to the Falcons mentioned in Mr. Jerdon's 'Supplementary Notes.' The identity of *Falco atriceps* and *F. peregrinator* is asserted.

REICHENOW, DR. ANTON.

Die Fussbildungen der Vögel. J. f. O. 1871, p. 401.

An essay on the varieties of structure met with in the formation of the foot (*pes*) of the class of birds. Six principal forms are recognized :—i. *pes natatilis,* ii. *p. radans,* iii. *p. raptorius,* iv. *p. fissus,* v. *p. arboreus,* vi. *p. saliens* ; and these and their minor modifications are carefully described.

REINHARDT, J.

1. *Letter from.* Ibis, 1871, p. 362.

On the occurrence of *Ara macao* in Mexico.

2. *Om en hidtil ukjendt Knogle i Hovedskallen hos Turakoerne*

(Musophagides, *Sundev.*), *med nogle Bemærkninger om de lignende Knogler hos andre Fuglefamilier.* Vidensk. Meddel. Nat. For. Kjöb. 1871, pp. 326–341, t. vii.

A short memoir on the presence of the *os uncinatum* in certain Turacoes (Musophagidæ). The Plate illustrates portions of the cranium of *Corythaix musophaga, Musophaga violacea, Schizorhis africana,* and *Trogon viridis.*

REY, EUGÈNE.

1. *Die Ornis von Halle.* Zeitschr. f. ges. Naturw. 1871, pp.453–489.

Contains an enumeration of and notes upon 253 species of European birds.

2. *Ueber Kuckukseier.* J. f. O. 1871, p. 225.

Gives a list of sixty-five Cuckoo's eggs in his collection in a tabular form, together with the names of the birds in the nests of which they were found, and remarks on their colour, with reference to the vexed question as to whether the colour of the Cuckoo's egg generally agrees with that of the bird's egg in the nest of which it is deposited.

3. *Jugendkleider und Eier einiger Vögel aus Klein-Asien.* J. f. O. 1871, p. 459.

Describes the young and eggs of several rare species of birds lately collected by Dr. Krueper near Smyrna, viz. *Sitta krueperi, Sylvia rueppelli, Emberiza cinerea,* &c.

ROSS, ALEXANDER MILTON.

The Birds of Canada; with descriptions of their habits, food, nests, eggs, times of arrival and departure. Toronto: 1871. Post 8vo, pp. 132.

A publication of little value, either as regards the letterpress or "Plates," the latter being woodcuts of the roughest description.

SALVADORI, TOMMASO.

1. *Fauna d'Italia.* Parte seconda: Uccelli. Fascicolo primo. Milano: 1871. Large 8vo, p. 80.

V. anteà, p. 187,

2. *Letter from.* Ibis, 1871, pp. 248, 249.

The specific distinctness of *Æthopyga lodoisia* and *Pitta bertæ* reasserted.

3. *Intorno alla* Fringilla citrinella, *Linn.* Atti della R. Ac. Tor. vii. (1871), pp. 259–264.

4. *Nuove specie di Uccelli dei generi* Criniger, Picus, *ed* Homoptila, *nov. gen.* Atti della R. Acc. Sci. Tor. vi. pp. 128–131 (1871).

The species here described are *Criniger finschi* from Borneo, *Picus* (*Dendropicus*) *leucopterus* from Central Asia, and *Homoptila decipiens* from Brazil. The latter genus differs only from *Leptoptila* (Columbidæ) in the form of the first primary. The species, except in this particular, precisely resembles *L. rufaxilla.*

5. *Note on* Ceriornis caboti. P. Z. S. 1871, pp. 695, 696.

SALVIN, OSBERT.

On the Psittacidæ *of Central America.* Ibis, 1871, pp. 86–100, pl. iv.

The distribution of the twenty-seven species (belonging to nine genera) of Central-American Psittacidæ is here fully given, the synonymy having been worked out in Dr. Finsch's volumes, 'Die Papageien.' One new species, *Conurus finschi*, from Veragua, is described and figured.

SAUNDERS, HOWARD.

1. *A List of the Birds of Southern Spain.* Ibis, 1871, pp. 54–68, 205–225, 384–402.

There are 321 species included in this 'List,' being those found in that portion of the Spanish peninsula lying southward of the 40th parallel of north latitude, including those of the Balearic Islands. The materials for this list were derived chiefly from the author's own observations, but partly also from those of Lord Lilford. Some Spanish catalogues, of which a list is given, also furnish some additional species.

2. *Exhibition of and Remarks on a Series of Skins of Eagles.* P. Z. S. 1871, pp. 37–39.

The series of skins exhibited illustrated the supposed differences between *Aquila imperialis* and *A. bifasciata.*

SCHLEGEL, DR. H.

1. *Observations Zoologiques,* iv. Nederl. Tijdschr. v. d. Dierk. iv. Afl. i. p. 1 (1871).

In this paper Prof. Schlegel describes new birds collected for the Royal Museum of the Netherlands by Von Rosenberg, Van Dam, M. Hoedt, and other travellers.

The species described as new are *Noctua hoedti* from Mysol, *Loriculus catamene* from Sanghir, *L. aurantiifrons* from Mysol, *Trichoglossus rosenbergii* from Soek, *Tanysiptera schlegeli* from Soek, *T. carolinæ* from Mefoor, *Nectarinia duyvenbodei* from Sanghir, *Monarcha brehmii* from Soek, *Pitta rosenbergii* from Soek, *Lamprotornis magnus* from Soek, *Ptilopus miquelii* from Meosnoum and Jobie, and *Leptoptila hoedti* from Wetter Island north of Timor.

Several birds are also described as local forms of known species, *e. g.*:—*Nasiterna pygmæa geelvinkiana* from Mefoor and Soek; *Ptilopus cinctus florensis* from Flores, and *P. cinctus leltiensis*, from Leltie Island, east of Timor; *Ptilopus viridis*, stirps *geelvinkiana* (=*Pt. musschenbroëkii*, v. R.), from Mefoor, Meosnoum, and Soek; *Carpophaga pinon jobiensis* from Jobie.

Important remarks are likewise given upon the Paradiseæ and upon other birds previously described.

2. *Observations Zoologiques*, v. Ned. Tijdschr. v. d. Dierk. iv. Afl. 2 and 3, p. 33 (1871).

In this paper Prof. Schlegel gives an account of the birds discovered by H. v. Rosenberg during a new expedition into the interior of New Guinea, in which, after several days' march, he is said to have reached an elevation of from 4000 to 5000 feet above the sea-level on the west coast of the great bay of Geelvink. The new species described are:—*Nanodes musschenbroëckii*, two species of a new genus of Parrots allied to *Euphema*, *Psittacella brehmi*, and *P. modesta*; a new *Myzomela*, named *M. rosenbergi*, after its discoverer; three new species of a Meliphagine form, *Euthyrhynchus* (*E. griseigula*, *E. flavigula*, and *E. fulvigula*); several new Muscicapidæ (*Muscicapa mulleriana*, *Myiagra glauca*, *Rhipidura brachyrhyncha*, and *Macheirhynchus nigripectus*); a new *Pachycephala* (*P. schlegeli*, v. R.); a new *Rectes* (*R. nigrescens*); three new *Campephagæ* (*C. strenua*, *C. albilora*, and *C. leucoptera*); a new form allied to *Pitta*, proposed to be called *Melampitta lugubris*; *Sitta* (i. e. *Sittella*) *papuensis*, *Sericulus xanthogaster*, *Ptilorhynchus inornatus*, *Ptilopus ornatus*, *Scolopax ro-*

senbergii, and *Rallicula rubra*, a new genus and species of Rallidæ. An apparently new *Gracula* is characterized as a new local form with three names, *Gracula anais orientalis*. As regards the species described by Schlegel as "*Casuarius bennetti*" from New Guinea, consult Sclater, P. Z. S. 1872, p. 147, pl. ix. Observations on several Paradiseæ, and on the rare *Dasyptilus pesqueti*, now first obtained by a European collector, are also given.

SCLATER, P. L.

1. *A Revision of the Species of the Fringilline Genus* Spermophila. Ibis, 1871, pp. 1–23, pls. i., ii.

The validity of twenty-four species of this genus is admitted; and diagnoses for their determination are given. There remain, however, eleven described species, which, being autoptically unknown to the author, are mentioned at the end of the paper. [Of these, we may remark that *Spermophila rufirostris*, Landb., appears to be the same as *Linaria inornata*, Lafr. R. Z. 1847, p. 75. There are many corrections of synonymy throughout the paper. The species figured are *Spermophila nigro-rufa* ♂ et ♀, *S. pileata* ♂, *S. aurita*, and *S. ocellata*.

2. *On the Land-birds of Juan Fernandez.* Ibis, 1871, pp. 178–183, plate vii.

Six species only are recorded from the two small islands forming this group. Four of these are peculiar to them, the remaining two being Chilian. The species figured are *Anæretes fernandezianus* and *Oxyurus masafueræ*.

3. *Remarks on the Avifauna of the Sandwich Islands.* Ibis, 1871, pp. 356–362.

These remarks criticise and add to a paper published in the 'Proceedings of the Boston Society of Natural History' by Mr. Sanford B. Dole of Honolulu. The new generic name *Chætoptila* is proposed for *Entomyza angustipluma*, Cassin.

4. *Notes on the Types of* Tyrannula mexicana *of Kaup, and* Tyrannula barbirostris *of Swainson.* P. Z. S. 1871, pp. 84–85.

T. mexicana is shown to be a *Myiarchus* identical with *M. cooperi* of Baird. *T. barbirostris* is *Blacicus tristis* (Gosse), with the locality "Mexico" instead of "Jamaica" wrongly assigned to it.

5. *Remarks on some Species of* Dendrocolaptidæ *in the Collection of the Smithsonian Institution.* P. Z. S. 1871, pp. 85–86.

The specimens examined included three of Tschudi's types, and necessitate some corrections in the nomenclature of this difficult family.

6. *Exhibition of a Skin of a Species of* Prinia *from Ceylon.* P. Z. S. 1871, p. 258.

The species is referred to *P. socialis,* and is the bird left undetermined by Mr. Legge (*cf.* P. Z. S. 1870, p. 673).

7. *On the Birds of the Island of Santa Lucia, West Indies.* P. Z. S. 1871, pp. 263–273, t. xxi.

The preface of this paper contains a summary of our knowledge of the bird-fauna of the Lesser Antilles, showing how lamentably deficient it is in many cases. The collection made by Mr. Semper in the island of Santa Lucia shows that twenty-five species inhabit that hitherto imperfectly explored island, of which three are not found elsewhere. One new species, *Icterus laudabilis* is described and figured.

8. *Notes on rare or little-known Animals now or lately living in the Society's Gardens.*—Part ii. Birds. P. Z. S. 1871, pp. 489–496.

Contains notes on several interesting species. The paper is illustrated by woodcuts of the heads of *Buceros subcylindricus, Cacatua ducorpsi, C. sanguinea,* and *C. gymnopis.* The last-named is described as a new species; and its habitat is traced to the interior of South Australia.

9. *On the Birds of the Vicinity of Lima, Peru; with Notes on their Habits, by Prof. W. Nation, of Lima.* Part iv. P. Z. S. 1871, pp. 496–499.

A continuation of previous papers on the same subject. Five species are mentioned, and one described as new under the name *Euscarthmus fulviceps,* a cut of the head, foot, and wing being given.

10. *On two new or little-known Parrots living in the Society's Gardens.* P. Z. S. 1871, pp. 499–500, tt. xl., xli.

Lorius tibialis is described as a new species, and figured. The second species is *Trichoglossus mitchelli,* G. R. Gray (which is also figured). The precise habitat of neither of these species has been as yet ascertained.

11. *Reports on the Additions to the Society's Menagerie for June, July, August, and September* 1871. P. Z. S. 1871, pp. 623–626.

The arrival of two Turtle-doves is announced from Aldabra Island, probably belonging to a new species, for which the name *Turtur aldabranus* is proposed. Mention is made of several other interesting birds; amongst them are *Crax daubentoni* and *Œdicnemus superciliaris.*

12. *Additional Remarks on certain Species of Pelicans.* P.Z.S. 1871, pp. 631–630, t. li.

These remarks supplement the author's previous paper on the Pelicans living in the Zoological Society's Gardens (P. Z. S. 1868, p. 264), and are accompanied by woodcuts of the heads of *P. sharpii* and *P. philippensis,* the former being also figured.

13. *Description of a new Species of Dove from the Coral-reef of Aldabra.* P. Z. S. 1871, pp. 692, 693, t. lxxiii.

The species previously mentioned as *Turtur aldabranus* is here formally described and figured.

14. *Remarks on a Collection of Birds from Oyapok.* P. Z. S. 1871, pp. 749, 750.

A new species of *Ochthoëca* is described as *O. murina*; and a list of the species of this genus, sixteen in number (including *Mecocerculus*), in the author's collection, is given. A new *Heteropelma* is described as *H. igniceps.*

15. *Remarks on the Species of the Genera* Myiozetetes *and* Conopias, *belonging to the Family* Tyrannidæ. P. Z. S. 1871, pp. 751–756.

Eight species of *Myiozetetes* are recognized, and their synonymy given, as well as notes and a key to their determination. To *M. luteiventris* an amended description is given. Of *Conopias* three species are allowed, one of which is *Myiozetetes inornatus,* Lawr.

Sclater, P. L., and Salvin, O.

A revised List of the Neotropical Laridæ. P. Z. S. 1871, pp. 564–580.

Eleven genera, containing 32 species, are recognized in this paper, leaving two of the latter undetermined. Several emendations in synonymy are made, but no new species are described. Woodcuts show the heads of *Sterna maxima, S. galericulata, Larus heermanni, L. belcheri,* and *Leucophæus scoresbii.*

Sharpe, R. B.

1. *A Monograph of the* Alcedinidæ *or Kingfishers.* London: 1868–71.

The concluding parts (xiv., xv.) of this admirable work contain figures of the following species:—*Ceryle rudis, Alcyone affinis, A. lessoni, Pelargopsis fraseri, Ispidina lecontii, Halcyon lindsayi, H. hombroni, H. albicilla, H. vagans, H. juliæ, H. leucopygia, Tanysiptera nais, T. galeata, T. sabinæ, T. emiliæ, T. ellioti* and *T. riedeli.* These numbers also contain the Introduction, Indices, &c., but not the Chapter on Anatomy by Dr. Murie, which we believe is still in course of preparation. The Introduction is carefully elaborated, and contains a concise summary of the classification, geographical distribution, and literature of the Kingfishers, as well as some concluding remarks on their general affinities to other groups. The latter remarks are illustrated by a "map;" and the generic characters have also an explanatory plate attached to them.

2. *Catalogue of African Birds.* London: 1871. 8vo, pp. 76.

A useful catalogue of 703 species of birds. Many identifications are made in synonymy; and the localities where the specimens in the author's collection were procured are given. Two species are described as new, viz. *Alethe castanonota,* from Fantee, and *Urobrachya bocagii,* from Angola. A new name, *Criniger verreauxi,* is proposed for *C. gularis,* Sw. *nec* Horsf., = *C. tephrogenys,* Finsch, *nec* Jard.

3. *Descriptions of two new Species of African Birds.* Ibis, 1871, pp. 100–102.

The species described are called *Scotopelia ussheri* and *Poliospiza crocopygia.* Both are from Fantee.

4. *On the Coraciidæ of the Ethiopian Region.* Ibis, 1871, pp. 184–203, 270–289, plate viii.

Mr. Sharpe includes the aberrant Mascarene forms *Atelornis,* *Brachypteracias,* and *Leptosoma* in the Coraciidæ, and divides the family into three subfamilies, *Coraciinæ, Brachypteraciinæ,* and *Leptosominæ.* Twelve African species are recognized, belonging to six genera, a new generic name, *Geobiastes,* being proposed for *Brachypteracias squamigera.* An English description and the synonymy of each species given in full, and copious extracts on the habits &c. of many of them, as well as a table of their geographical distribution make the monograph a very complete one. The plate shows the characters of *Geobiastes* and other genera.

Mr. Sharpe does not appear to have noticed that *Leptosoma* has zygodactyle feet, so that it is somewhat contrary to ordinary ideas of classification to place it in the same *family* as *Coracias* and other genera with three toes in front.

5. *On seven new or lately described Species of African Birds.* Ibis, 1871, pp. 414–417, pl. xii.

The species here described are *Caprimulgus cinnamomeus,* from Lagos, *Irrisor castaneiceps,* from Fantee, *Crateropus haynesi,* from Accra, *Ægithalus caroli,* from Damara Land, *Artomyias ussheri,* from Fantee, and *Laniarius nigrithorax,* from Accra. The plate illustrates *Scotopelia ussheri.*

6. *On the Birds of Angola.*—Part iii. P. Z. S. 1871, pp. 130–135, t. vii.

This list raises the total number of birds enumerated in this series of papers from 61 to 80. Two species are described as new, viz. *Pycnonotus gaboonensis* and *Hypochera nigerrima*: the former is figured, together with two other very closely allied species, *P. tricolor* and *P. barbatus.*

7. *Contributions to the Ornithology of Madagascar.*—Part ii. P. Z. S. 1871, pp. 313–320, t. xxxii.

One species is described as new in this paper, viz. *Cypselus gracilis*; and *Corethrura insularis* is figured. The remainder of the paper relates to species mentioned in the author's former article.

8. On *Machærhamphns anderssoni.* P. Z. S. 1871, pp. 500–502.

The acquisition by Lord Walden of a Malaccan specimen of *M.*

alcinus has enabled Mr. Sharpe to compare it with the so-called *Stringonyx anderssoni,* from Damara Land, and to state that though generically identical they are specifically quite distinct.

9. *On the Birds of Camaroons, Western Africa.* P. Z. S. 1871, pp. 602–615, t. xlvii.

A list of 62 species, with notes, based upon a collection made by Mr. Crossley in the Camaroons. One new species is described and figured as *Turdus crossleyi.*

10. *On the American Eider Duck.* Ann. & Mag. N. H. ser. 4, viii. pp. 51–53 (1871).

The American Eider Duck is shown to differ from the European, the name *Somateria dresseri* being proposed for the former. Woodcuts show the most salient distinctions.

11. *On the* Alauda bimaculata *of Ménétriés.* Ann. & Mag. N. H. ser. 4, viii. pp. 179–181 (1871).

The distinctions between *A. bimaculata* and *A. calandra* are here shown, the synonymy and range of the former being fully given.

12. *Notes on some African Birds.* Ann. & Mag. N. H. ser. 4, viii. pp. 234–238 (1871).

Crithagra leucoptera, from South Africa, is described as a new species. The paper also contains notes upon *Butalis epulata, Crithagra albogularis,* and *Spermospiza hæmatina.*

SHARPE, R. B., and DRESSER, H. E.

1. *A History of the Birds of Europe, including all the species inhabiting the Western Palæarctic Region.* London. 4to. Parts i.–ix. (1871).

A most important work, and one that will tend greatly to place the intricate study of European birds on a more satisfactory basis. A critical examination of specimens from every available source has enabled the authors to write with precision not attainable by their predecessors over the same ground. Nine parts were issued during the year 1871, containing figures and descriptions of the following species:—Part i. *Coracias garrula, Falco vespertinus, Totanus stagnatilis, Emberiza leucocephala, Lophophanes cristatus, Lanius auriculatus, Querquedula crecca, Q. formosa.* Part ii. *Falco tinnunculus, Glaucidium*

passerinum, Parus major, Lanius excubitor, L. nubicus, Emberiza cæsia, Chettusia leucura, Querquedula falcata. Part iii. *Somateria stelleri, Ardea melanocephala, Numenius tenuirostris, Lanius algeriensis, Calamophilus biarmicus, Dryocopus martius, Emberiza citrinella, Falco cenchris.* Part iv. *Falco subbuteo, Athene noctua, Lanius collurio, Emberiza aureola, Melanocorypha yeltoniensis, Gecinus viridis, Terekia cinerea, Somateria mollissima, Larus minutus.* Part v. *Accipiter brevipes, Picus major, Parus palustris, Emberiza cirlus, Melanocorypha calandra, Turdus musicus, Totanus canescens, Querquedula circia.* Part vi. *Parus cinctus, Emberiza striolata, Picus medius, Carpodacus erythrinus, Turdus viscivorus, Alauda arvensis, Squatarola helvetica, Charadrius pluvialis.* Part vii. *Picus leuconotus, Emberiza hortulana, Fringilla montifringilla, Lagopus hemileucurus, Upupa epops, Tringa temmincki, Tringa minuta.* Part viii. *Sterna fluviatilis, Parus cæruleus, Parus teneriffæ, Emberiza miliaria, Petrocossyphus cyanus, Tichodroma muraria, Melanocorypha bimaculata, Picus numidicus.* Part ix. *Turdus pilaris, Picus syriacus, Emberiza chrysophrys, Accipiter nisus, Lanius meridionalis, Bonasa betulina, Charadrius fulvus.*

2. *On two undescribed Species of European Birds.* Ann. & Mag. N. H. ser. 4, viii. pp. 436, 437 (1871).

Some of the fruits of the authors' critical examination of numerous specimens from all parts of Europe for their work on the birds of that continent. The species are *Picus lilfordi*, from Epirus, Macedonia, and Turkey, and *Parus britannicus*, our common English Coal Tit.

3. *On a new species of Long-tailed Titmouse from Southern Europe.* P. Z. S. 1871, pp. 312, 313.

This species, called *Acredula irbii*, is founded on Spanish specimens obtained by Major Irby near Gibraltar. It is also found in Piedmont.

Shelley, G. E.

Contributions to the Ornithology of Egppt. Ibis, 1871, pp. 38–54, 131–147, 309–319.

There are 236 species mentioned in this paper, most of which came under the author's notice during two visits to Egypt. Short notes on the habits and localities of each species are given. *Saxicola leucocephala* is considered to be the same as *S. leucopygia.*

SMITHSONIAN INSTITUTION.

Annual Report of the Board of Regents, showing the operations, expenditures, and condition of the Institution for the year 1869. Washington: 1871. 8vo, pp. 430.

From page 226 to page 285 will be found a translation of Mons. Marey's important paper on the phenomena of flight in the animal kingdom, originally published in the 'Revue des Cours Scientifiques.' [*Cf.* Ibis, 1870, p. 266.]

SOUTHWELL, THOMAS.

On the Ornithological Archæology of Norfolk. Trans. Norf. & Norw. Soc. 1871, pp. 14–23.

Extracts from old records, giving the value of certain birds, as well as illustrating the former prevalence of several birds now rare or extinct in Norfolk.

STACK, J. W.

Some observations on the Annual Address of the President of the Philosophical Institute of Canterbury, delivered on the 1*st March,* 1871. Trans. N.-Zeal. Inst. 1871, pp. 107–110.

These observations refer to Dr. Haast's paper on Moas and Moa-hunters [see HAAST], and to a great extent coincide with the views there expressed as to the destruction of *Dinornis* being of older date than has usually been supposed.

STEVENSON, H.

1. *On the abundance of Little Gulls on the Norfolk Coast in the Winter of* 1869–70.

Records a very unusual frequency of the occurrence of *Larus minutus* on the Norfolk coast.

2. *On Pellets thrown up by Rooks.* Trans. Norf. & Norw. Soc. 1871, pp. 88–90.

3. *Abundance of Quails.* Trans. Norf. & Norw. Soc. 1871, p. 90.

SUNDEVALL, Prof. CARL J.

1. *Svenska Foglarna med text af Professor Carl J. Sundevall, tecknade och lithographierade af Peter Åkerlund.* Stockholm.

Of this excellent work we have received as far as the 22nd part (containing text to p. 352), but are not certain about the exact date of issue, as none is given on the covers.

2. *On Birds from the Galapagos Islands.* P. Z. S. 1871, pp. 124–130.

The species, 26 in number, included in this list were obtained during a nine days' visit to these islands by the Swedish frigate 'Eugenie,' and were collected on Chatham, Charles, James, Albemarle, and Indefatigable Islands. Notes to several are made; and two are described as new, viz. *Ardea plumbea* and *Spheniscus mendiculus.*

SWINHOE, ROBERT.

1. *On a new Chinese Gull.* P. Z. S. 1871, pp. 273-275, t. xxii.

The species here described and figured is called *Chroicocephalus saundersi.* It had, in Mr. Swinhoe's previous papers, been referred to as *Larus kittlitzi.* It is common in winter at Amoy.

2. *A revised Catalogue of the Birds of China and its Islands, with Descriptions of new Species, References to former Notes, and occasional Remarks.* P. Z. S. 1871, pp. 337–423.

This comprehensive list, the object of which is sufficiently indicated in the title, includes 675 birds as inhabitants of China and its islands. The following are described as new species:—*Aquila amurensis, Cecropis arctivitta, Sitta amurensis, Locustella taczanowskia, Motacilla baicalensis, Spizixus cinereicapillus, Suthora suffusa, Lanius incertus, Dicrurus cathœcus, Alauda wattersi, Alaudula cheleënsis, Areoturnix blakistoni, Hemipodius viciarius, Hæmatopus osculans.* One new genus, *Herbivox,* is instituted, for four species hitherto placed under *Calamoherpe* and *Salicaria,* viz. *H. cantans,* T. & S., *H. canturiens,* Swinh., *H. minuta,* Swinh., and *H. cantillans,* T. & S.

3. *On four new Species of Asiatic Birds.* Ann. & Mag. N. H. ser. 4, vii. p. 257 (1871).

These species are called *Pellorneum subochraceum,* from the Tenasserim provinces (qu. = *P. tickelli,* Blyth? *cf.* Blanford, *anteà,* p. 87), *Pœcile baicalensis,* from Trans Baikal, *Mirafra borneënsis,* from Borneo, and *M. parva,* from Flores.

TACZANOWSKI, L.

1. *Notiz über die ostsibirischen* Numenius-*Arten.* J. f. Orn. 1871, p. 56.

Describes a large *Numenius*, four examples of which were obtained in Eastern Siberia by Messrs. Dybowski and Godlewski, and sent to the Warsaw Museum, and refers it to *N. nasicus*, Temm. It is larger than *N. arquatus*, and has a much longer beak. Remarks upon the other Siberian species of *Numenius* (*N. australis* &c.) are also given.

2. *Nachtrag zur Notiz über die ostsibirischen* Numenius-*Arten.* J. f. Orn. 1871, p. 395.

Describes two young specimens of *Numenius australis*, from Siberia.

3. *Beleuchtung einiger Fragen, die Herr. v. Heuglin zu meiner Uebersicht der Vögel Algeriens gestellt.* J. f. Orn. 1871, p. 61.

Remarks on several questions raised by Herr v. Heuglin concerning species contained in the author's review of Algerian birds (*cf.* J. f. Orn. 1870, pp. 33, 383). A full description is given of a specimen of a *Porzana* obtained at Biskra, which was referred by J. Verreaux to *P. marginalis* of Hartlaub.

TRAVERS, W. T. L.

1. *Notes on the Habits of* Podiceps cristatus. Trans. N.-Zeal. Inst. 1870, pp. 113–116.

Relates chiefly to the breeding of this species (*P. hectori*, Buller) on Lake Guyon, in the province of Nelson.

2. *Notes on the Habits of some of the Birds of New Zealand.* Trans. N.-Zeal. Inst. 1871, pp. 206–213.

Some field-notes, made chiefly in the neighbourhood of Lake Guyon, province of Nelson.

TRIPPE, T. MARTIN.

Notes on the Birds of Minnesota. Proc. Ess. Inst. 1871, pp. 113–119.

A list, with notes, of 138 species of birds.

TRISTRAM, H. B.

1. *Letter from.* Ibis, 1871, pp. 109–110.

Phyllopneuste schwartzi = *Phylloscopus viridanus* = *Abrornis* *tenuiceps*. *Phyllopneuste eversmanni* of Midd. = *P. sylvicultrix*, Swinh., = *P. borealis*, Blas.? Three species have been confounded under the name *Phylloscopus fuscatus*, viz. *Phyllopneuste sibirica*, Midd., *P. brunneus*, Blyth (= *P. maacki*, Schr.*?), and *P. fuscatus*, Blyth.

2. *Notes on some Passerine Birds, chiefly Palæarctic.* Ibis, 1871, pp. 231-234.

The Palæarctic forms obtained by Dall and Bannister in Alaska furnish the subject of some of Mr. Tristram's notes, the specimens having been sent to him for comparison. *Phyllopneuste kennicotti* = *P. borealis*, Blas.,—*P. sylvicultrix*, Swinh., *P. eversmanni*, Midd. nec Bp., and *P. flavescens*, G. R. Gray, being synonyms. *Pyrrhula coccinea*, var. *cassini*, is a good species. Mr. Tristram accompanies his remarks with a brief synopsis of the nine species of *Pyrrhula*.

Reguloides occipitalis, Jerd., = *Phyllopneuste coronata*, Temm. *Anthus cervinus* is recognized as an eastern form of Red-throated Pipit distinct from the western, to which the name *A. rufogularis* is applied.

3. *Notes on Sylviads.* Ann. & Mag. N. H. ser. 4, viii. pp. 28, 29 (1871).

The difference between *Phyllopneuste brevirostris* and *P. rufa* is asserted. *P. major* is described from the southern Mediterranean coasts. It is *Sylvia icterina* of Temminck, but not of Vieillot.

TSCHUSI-SCHMIDHOFEN, VICTOR, RITTER VON.

1. Nucifraga caryocatactes, *L.* *Aufzeichnung der mir bekannt gewordenen Fälle von der Auffindung des Nestes und der Eier des Tannenhähers.* Verh. k.-k. zool.-bot. Gesell. Wien, 1871, pp. 81-86.

An account of the nests and eggs of this species taken between the years 1857 and 1870.

2. *Die ornithologische Sammlung der k.-k. zoologisch-botanischen Gessellschaft in Wien.* Verh. k.-k. zool.-bot. Gesell. Wien, 1871, pp. 791, 792.

A short account of some of the contents of this collection, wherein are to be found many of the specimens described by C. L. Brehm.

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* A view subsequently corrected (p. 233), *Sylvia maacki* being placed in *Calamoherpe*.

VERREAUX, JULES.

1. *Observations on the Colouring-matter of the Wing-feathers of Touracoes.* P. Z. S. 1871, pp. 40, 41.

2. *Description d'une Espèce nouvelle de* Promerops. P. Z. S. 1871, pp. 135, 136, t. viii.

The species here described and figured is called *P. gurneyi.*

3. *Description de deux Oiseaux de la Collection Zoologique du Muséum qui constituent des espèces nouvelles.* Nouv. Arch. du Mus. Bull. v. pp. 15–17, t. i.

The first of these species is from Cayenne, and is called *Callirhynchus frontalis* ; the second, from New Caledonia, is placed in a new genus, *Megalurulus,* the proposed specific name being *mariæ.* It is allied to *Megalurus.* Both are figured.

4. *Notes sur quelques Oiseaux considérés comme nouveaux provenant du Voyage de M. l'Abbé Armand David dans le Thibet oriental.* Nouv. Arch. du Mus. Bull. v. (1869), pp. 33–36, t. vi.

The species described as new are *Lophophorus obscurus* (which is also figured), *Trochalopteron formosum, Yuhina diademata, Callene zonura, Suthora gularis,* and *Mecistura fuliginosa.*

5. *Note sur les Espèces nouvelles d'Oiseaux recueillis par M. l'Abbé Armand David dans les montagnes du Thibet Chinois.* Nouv. Arch. du Mus. Bull. vi. (1870), pp. 33–40, t. 3.

Thirty-two species are mentioned in this paper, four of which were described in the author's previous paper. One (*Parus pekinensis*) has also been previously described in this Journal (Ibis, 1870, p. 155). The remaining twenty-seven are named as follows:—*Picus desmursi, Picoides funebris, Sitta sinensis, Siphia hodgsoni, Pnoëpyga troglodytoïdes, Turdus auritus, Merula gouldi, Cholornis paradoxa* (the genus being described as new), *Suthora alphonsiana, Alcippe pœcilotis, Pterorhinus maximus, P. lanceolatus, Ianthocincla lunulata, Trochalopteron ellioti, T. blythi, Arundinax davidiana, Abrornis acanthizoides, Siva cinereiceps, S. ruficapilla, S. striaticollis, Minla jerdoni, Proparus swinhoii, Mecistura vinacea, Carpodacus edwardsi, C. trifasciatus, C. vina-

ceus, and *Pyrgilauda davidiana* (the generic name being new). The species figured are *Ianthocincla maxima* (qu.=*Pterorhinus maximus* of text ?) and *I. lunulata.*

6. *Description des Oiseaux nouveaux ou incomplétement connus collectés par M. l'Abbé Armand David pendant son Voyage dans le Thibet oriental et la partie adjacente de la Chine.* Nouv. Arch. du Mus. Bull. vii. (1871), pp. 25–66, plates i., ii.

In this paper fuller descriptions are given of all the species included in that last mentioned, in addition to which we find the following birds described, brief diagnoses of which have been published in previous papers:—*Suthora gularis, Trochalopteron formosum, Yuhina diademata, Parus pekinensis, Mecistura fuliginosa, Allotrius sophiæ, Lusciniopsis brevipennis,* and *Alcippe cinerea. Cholornis paradoxa, Pyrgilauda davidiana, Trochalopteron formosum,* and *Pterorhinus lanceolatus* are figured.

VOUGA, Capitaine.

Oiseaux rares tués dans le Canton et Bassin du Lac de Neuchâtel et que j'ai montés de 1816 *à* 1870. Bull. Sc. Nat. Neuch. 1871, pp. 2, 3.

A list of rare birds observed in the vicinity of the Lake of Neuchâtel.

WAHLGREN, Dr. F.

Ein Ei im Eie. J. f. O. 1871, p. 260.

A discussion of the different modes in which, in the case of the Common Fowl, Duck, and Goose, one egg is occasionally found enclosed in another egg.

WALDEN, ARTHUR, VISCOUNT.

1. *Letter from.* Ibis, 1871, p. 112.

Prinia albogularis, Wald.,=*P. hodgsoni,* Blyth; *Ephialtes jerdoni,* Wald.,=*Scops malabaricus,* Jerdon.

2. *Observations on Dr. Stoliczka's "Contributions to Malayan Ornithology."* Ibis, 1871, pp. 158–177, plate vi.

This paper contains numerous criticisms on Dr. Stoliczka's article upon the birds of Province Wellesley. There are, too, many careful notes in it on intricate points of synonymy, both in correction of Dr. Stoliczka's identifications and in exemplification of them. The species figured are *Criniger gularis* and *C. phæocephalus.*

3. *Notice of, and Introductory remarks to, a Memoir on the Birds of the Island of Celebes.* P. Z. S. 1871, pp. 329–337.

Contains the introductory portion of a paper published in the 'Transactions of the Zoological Society,' on the birds of Celebes. The relationships of the bird-fauna, both as to genera and species, of this island to those surrounding it, and to the Indian and Australian regions generally, are exhaustively discussed.

4. *Notice of a new Species of* Polihierax *from Upper Burmah.* P. Z. S. 1871, pp. 627, 628.

The name proposed for this species, with a brief provisional description, is *P. insignis.* [It has since been described by Mr. Hume: see below, p. 471.]

5. *Descriptions of three new Species of Asiatic Birds.* Ann. & Mag. Nat. Hist. ser. 4, vii. pp. 241, 242 (1871).

The species here described are called *Phyllornis chlorocephalus,* from Tonghoo, *Turdinus striatus,* from the Khassia hills, and *Cisticola ruficollis,* from Debrooghur.

6. *On a new Species of* Trichoglossus *from Celebes.* Ann. & Mag. N. H. ser. 4, viii. pp. 281, 282 (1871).

Trichoglossus meyeri is the name proposed for this new species.

WILLIAMS, ARCHDEACON W. L.

On the Occurrence of Foot-prints of a large Bird found at Turanganui, Poverty Bay. Trans. N.-Z. Inst. 1871, pp. 124–127, pl. viii.

The plate shows the nature of these foot-prints, which were found in soft alluvial rock just below high-water mark. They were made most probably by some species of Moa, and, being of two sizes, perhaps by old and young birds.

WOOD, T. W.

Letter from. Ann. & Mag. N. H. ser. 4, viii. pp. 67, 68 (1871).

A new species of Argus Pheasant is here sought to be established. The description is based upon a primary wing-feather found amongst some of *Argus giganteus.* The species is called *A.* (?) *bipunctatus*; and woodcuts show the markings of the feather and those of the well-known species.

Wyatt, Claude W.

Notes on some of the Birds of the United States of Columbia. Ibis, 1871, pp. 113–131, 319–335, 373–384, plate v.

In the first portion of this paper the author's route is described and is also set out on an accompanying map (plate v.). The varieties of altitude, climate, and vegetation of that portion of the eastern slope of the valley of the Magdalena visited by Mr. Wyatt is also fully entered into. In the list of birds, mention is made of 210 species, specimens of all of which were obtained, and their names determined by Messrs. Sclater and Salvin. Though several species of considerable interest came under Mr. Wyatt's observation, the chief importance of the list consists in the accurate localities given to all the species mentioned. Amongst the notes are the following corrections of synonymy :—*Turdus fulviventris*, Scl., = *T. euryzonus*, Du Bus; *Saltator flavidicollis*, Scl., = *S. olivascens*, Cab.; *Cassicus vitellinus*, Lawr., = *C. flavicrissus*, Scl.; *Trogon eximius*, Lawr., = *T. chionurus*, Scl. and Salv.

XLV.—*Letters, Announcements, &c.*

We have received the following letters addressed to "The Editor of 'The Ibis'":—

24th June, 1872.

Sir,—Amongst the more interesting additions that I made during a recent trip to Scinde, to our Indian avifauna, are the following:—*Anas marmorata* (very common), *Columba livia* (rare), ? *Larus dominicanus* (common), *L. hemprichi* (common), *Pyrrhula githaginea* (common), *Podiceps nigricollis* (rare), *Pterocles lichtensteini* (rare), *P. guttatus* (very common), *P. coronatus* (rare), ? *Sylvia cetti* (common), *Thalasseus cantiaca* (common), ? *Tringa crassirostris* (common). Those with a note of interrogation prefixed may be doubtful—but if not what I have designated them, are new to science.

Then I got numerous specimens of *Certhilauda desertorum, Haliaëtus albicilla, Laticilla burnesi, Limosa rufa, Pratincola leucura, Picus scindeanus, Brachypterus dilutus, Pelecanus crispus, Phaëton æthereus, Saxicola kingi* (nobis), *Phylloscopus* *neglectus* (nobis), *Sylvia delicatula, Thalasseus bengalensis, T. cristatus, Phalaropus fulicarius, Calidris arenaria, Terekia cinerea, Sylvia melanopogon*—besides a Swift, a *Cotyle,* and a *Lestris,* none of which I know and which may be new.

I hope before long to publish, in a separate form, my notes on the ornithology of Scinde, which I have worked very thoroughly, bringing away 1500 skins.

Yours &c.,
A. O. Hume.

Assensole, India, 10th July, 1872.

Dear Sir,—I wish to make a few remarks upon Mr. Hume's six new species described in 'The Ibis' for April 1872, p. 107.

1. Chrysomitris thibetana.—Is a true Siskin; but I am not sure of its distinctness from *C. spinus* ♀. I think it would have been better if Mr. Hume had reserved this bird till he had an opportunity of comparing it with female specimens of *C. spinus.* When I was at Simla, we had nothing to compare it with but the descriptions of Macgillivray and Yarrell.

C. spinoides is not a Siskin, but a Greenfinch allied to *C. chloris.* Like the latter bird, it has no regular song; but its call-notes are very similar to those of its ally. In Cashmere I did not observe *C. spinoides* after passing the first (or Pir-Punjal) snowy range of the Himalayas.

2. Dumeticola cyanocarpa.—We certainly made a mistake in thinking that a *Dumeticola* could have any blue about it. Mr. Hume's bird belongs to some other genus, and is much closer to *Brachypteryx* than to *Dumeticola.* To the best of my recollection I did *not* agree to this bird being classed as a *Dumeticola.*

The *Dumeticola* I procured in Cashmere was not *D. affinis,* but a species an inch longer and with a much longer bill. It has been described in the 'Journal of the Asiatic Society,' part ii. no. 1, 1872, p. 77, as *Dumeticola major.* When I misnamed this bird "*D. affinis,*" I had not seen Mr. Hodgson's drawing of that species. By "*D. affinis*" Mr. Hume refers to my birds; for neither of us had then seen the true *D. affinis.*

3. Horornis erythrogenys.—Appeared to me to be a good

species. None of Mr. Hodgson's birds of this genus is so rufous.

4. Horeites brunnescens.—I remember this bird, and most decidedly differ from Mr. Hume. The bill is much more pointed than that of *Horeites*; and I think the bird should be the type of a new genus. It is a good species, I think.

5. Siphia minuta is *Siphia tricolor*, Hodgson. My specimens, miscalled "*Siphia tricolor*," to which Mr. Hume refers, were immature males of *S. leucomelanura*. The latter bird and also *Ianthia rufilata* breed in immature dress precisely resembling that of the female. I did not know this when I labelled young male specimens of *S. leucomelanura* as *S. tricolor*. As soon as I saw Mr. Hodgson's drawing, I perceived my mistake, and that Mr. Hume's new species agreed very well with *S. tricolor*.

Some of Mr. Hume's "total lengths" are taken from the skins only, and are thus apt to mislead. I could not imagine a *Siphia* as small as a *Regulus*, and having a wing 2·2 inches long. In *Siphiæ* a wing of this length belongs to a bird $4\frac{3}{4}$ or 5 inches long. I examined Mr. Hume's bird; and it was quite as large as my specimens of *S. leucomelanura*.

Very little is known of Mr. Hodgson's *Siphia tricolor*; and it is probable that the mature male will prove to be a blue-plumaged bird.

6. Drymoipus rufescens is a good species. It breeds sparingly at the old Fort at Etawah. In Bundelcund it is much more common. It varies excessively in size.

I remain
Yours faithfully,
W. E. Brooks.

Lismullen, Navan, Aug. 12, 1872.

Sir,—As *Elanus melanopterus* (or, as it should rather be called, *E. cæruleus*) is not, I think, included in the list of British birds, and I have a British specimen in my possession, I think the occurrence is worth noticing. I received the skin in a very rough state, filled out with hay, from Dr. P. Nicolls, of Navan, who thought it was a Pied Hawk. This you will see from the copy I enclose you of a letter received from Dr. Nicolls, who had the skin from the time it was shot until he gave it to me. I have no doubt as to the species, having not only compared it with the plate in Gould's 'Birds of Europe,' but also having shown it to Mr. A. G. More—who pronounced it to be an immature specimen, from the brown feathers on the breast.

I have the honour to be, Sir,
Your obedient servant,
John F. Dillon.

[*Copy of Letter.*]

Belmount, Navan, 29th Nov., 1865.

"Dear Sir,—It is about ten years since the bird I sent you was killed at Harristown Bay, near Beauparc, by Mr. Horin, of Navan, who killed a Bittern on the same day. I looked upon it as a Pied Hawk, and preserved it.

"Yours sincerely,
"*To J. F. Dillon.*" "P. Nicolls."

Sir,—In the 'Proceedings of the Asiatic Society of Bengal,' no. v. May 1872, pp. 70, 71, will be found the description of a Falconine bird, termed a "Merlin," from Thayet-Myo, by Mr. A. O. Hume, and entitled by that gentleman *Lithofalco* (!) *fieldeni*, or Fielden's Merlin. The species in question belongs to the remarkable genus *Polihierax*, Kaup, founded for the reception of the African *Falco semitorquatus*, Smith (Illustr. S.-Afr. Zool. *Aves*, pl. 1), and of which *Hypotriorchis castanotus*, Heuglin (Ibis, 1860, p. 407), is the male (*Cf.* Sclater, Ibis, 1861, p. 346, pl. 12). The strongly graduated rectrices, the double-notched maxillæ, the powerful legs, and the peculiar colouring of the plumage, differing also in the sexes, fully entitle the two known species to generic distinction. The occurrence of this African generic form in Burmah is of the highest interest, more especially when considered together with the fact of *Machæramphus* being also represented in the Malay peninsula. I have little hesitation in identifying Mr. Hume's new Merlin, notwithstanding the genus he has classed it under, as *Polihierax insignis*, mihi (P. Z. S. part iii. 1871, p. 627, ex Burmah).

In the 'Journal of the Asiatic Society of Bengal,' part ii. no. 1, 1872, p. 76, Mr. W. E. Brooks informs us that "the males of *Erythrosterna parva,* in the breeding-plumage, have the red on the breast bordered on each side by a stripe of velvet black. In the winter the black border disappears," &c. This somewhat startling fact would have, anyhow, inclined me to conjecture that Mr. Brooks had met with another species; but, fortunately, I have lately had an opportunity of examining one of Mr. Brooks's specimens of his so-called *E. parva* in nuptial plumage. It turned out to be *Siphia* (*Menetica*) *hyperythra,* Cabanis (Journ. für Orn. 1866, p. 391), ex Ceylon, where other examples have been since obtained by Mr. Holdsworth. It may be added that the species seems to be only a winter resident in Ceylon, but that it never loses the black pectoral stripes.

Yours, &c.,
Walden.

Chislehurst, Aug. 27th, 1872.

Sir,—Mr. Andrew Anderson, in the first part of his valuable paper "On the Raptorial Birds of India," published in the 'Proceedings of the Zoological Society of London' for 1871, p. 685, calls attention to the difference observed by himself and by another zealous student of Indian ornithology, Mr. W. E. Brooks, between the form of the nostril in *Aquila imperialis* and in *A. nævioides.* I must admit that, for one, I have not hitherto paid sufficient attention to this mode of diagnosis between these two species,—an omission which has partly arisen from the difference being less obvious in specimens that have been long prepared than in those in which the parts in question are recent and less desiccated—the fact being that, in specimens of *A. nævioides* which have been prepared many years, the shape of the nostril becomes modified by long drying, and approaches much nearer to that of *A. imperialis* than is the case in recently killed *A. nævioides.*

My present object in adverting to this subject is to correct an error contained in a letter addressed by myself to 'The Ibis' on February 8th, 1871, in which I mentioned that two Spanish

Eagles preserved in the Norwich Museum, for which Dr. R. Brehm proposed the name of *Aquila adalberti*, and also a third Spanish Eagle, then in the collection of Mr. J. H. Gurney, Jun., by whom it was subsequently presented to the Norwich Museum, were in my opinion specimens of *A. nævioides*.

I have recently reexamined these specimens, with especial reference to the mode of diagnosis suggested by Mr. Anderson, and, after doing so, have arrived at the conclusion that all three are, in reality, examples of *Aquila imperialis* in immature dress, greatly faded by exposure to sun and weather.

I shall therefore feel obliged by your insertion of this correction, and am indebted to the two ornithologists to whom I have already referred for calling attention to the subject.

I am yours &c.,
J. H. GURNEY.

Totnes, 9th September, 1872.

SIR,—So little appears to be known about the range of *Emberiza huttoni*, Blyth, that it may be worth while to record the fact of the species having been obtained in China. According to Jerdon, this Bunting is only certainly known from the north-west of India, although it may be an occasional straggler to the western part of that country. Its occurrence, therefore, so far east as Canton is of some interest. The specimen which came into my hands was killed by my friend Mr. Samuel Bligh, now in Ceylon; and by some accident, either there or in England, this bird (having no label) was placed with specimens of Ceylonese origin instead of with those collected in China. As no Bunting had yet been obtained in Ceylon, I sent the skin back to Mr. Bligh asking for information about it; for it was not desirable to include it in my 'Catalogue of the Birds of Ceylon' without good authority. He writes to me, in reply:— "I recognized the Bunting at once; I shot it in a dry paddy-field to the north-east of Fatshan, in the province of Canton, China, in December 1868. There were many species in the field; and I think I shot four kinds that morning. They were scattered all over the field, in small parties. I thought this one was an immature Ortolan."

Mr. Bligh has never been in India, and is not acquainted with Indian birds generally; so that I have no doubt he is correct in what he says of the history of this specimen.

I will only add that Mr. H. E. Dresser has kindly examined the skin for me, and is quite satisfied that it is a female of *Emberiza huttoni*, Blyth.

Yours, very truly,
E. W. H. Holdsworth.

11 Osnaburg Street,
23rd September, 1872.

We regret to have to add another name to the already heavy list of deaths which have occurred amongst ornithologists during the past year. Sir Andrew Smith, whose name is so familiar in connexion with the ornithology of South Africa, died in London in August last, being in his 75th year. His services to ornithology are of an important nature; and his work on the Zoology of South Africa contains the first connected account of the Birds of Cape Colony and the adjoining countries. He contributed also several articles on the Birds of the same districts to the 'South-African Quarterly Journal.' On the completion of this work, Sir A. Smith's opportunities for active interest in ornithology seem to have become exhausted; for during the later years of his life he did not again resume the subject, pressing official duties probably affording him but little leisure for such pursuits.

The materials for his great work were collected between the years 1821 and 1838; and many of the skins he obtained still exist in various museums. The work in question contains many original descriptions; and though its completeness has since been impaired by the observations of numerous other explorers, it will ever remain perhaps the most important contribution to South-African Ornithology.

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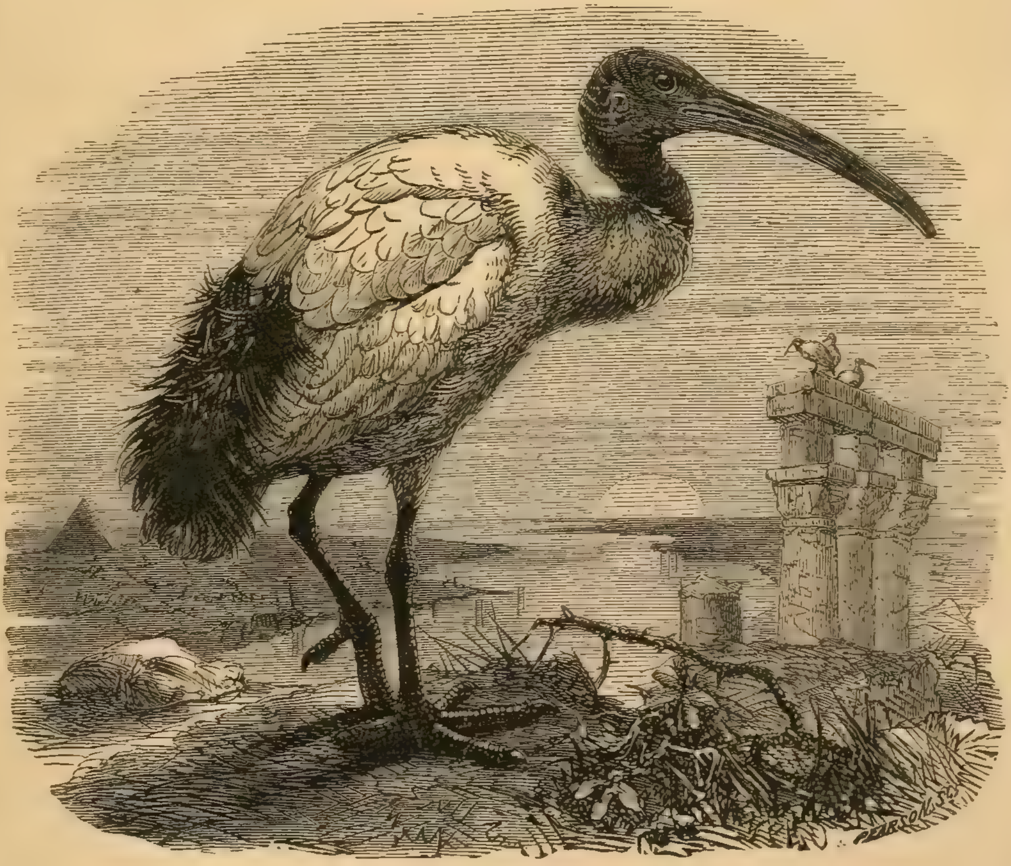

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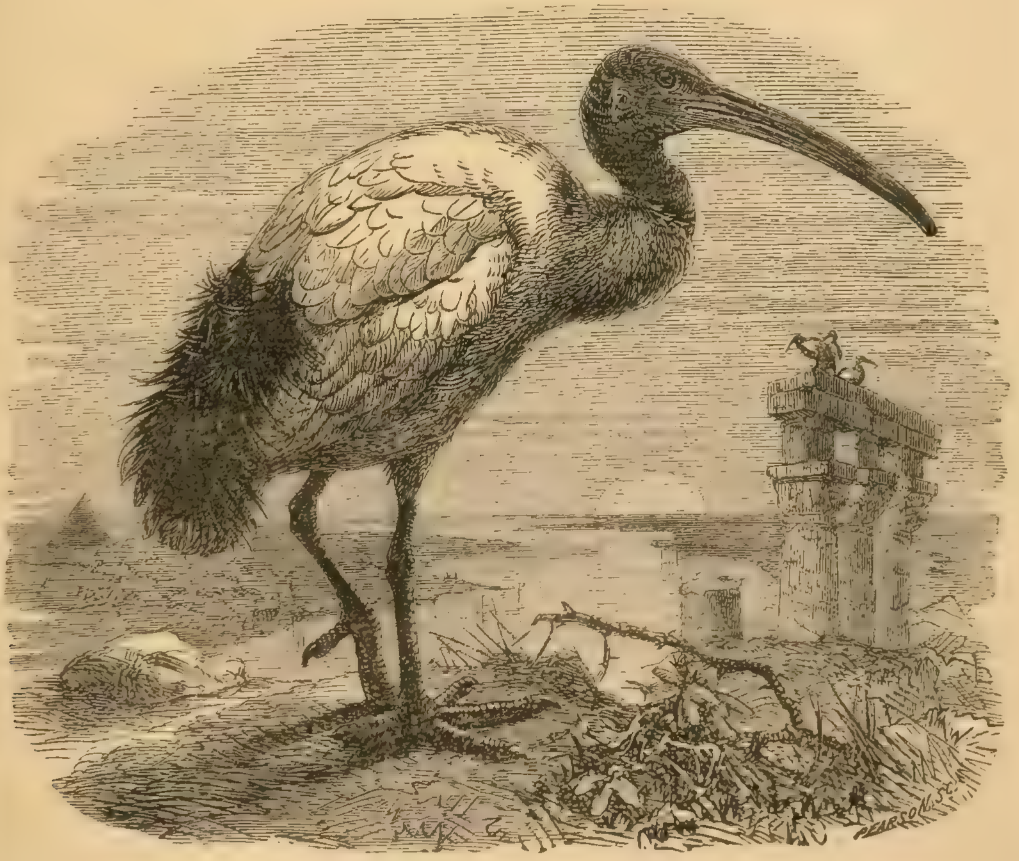

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